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Greetings from Mexico

GUILLERMO QUESADA BRAVO, D.V.M.
Mexico City, Mexico

THE AMERICAN Veterinary Medical Association cordially invited the Mexican Government to send a delegation of veterinary doctors to the annual convention that this scientific body celebrates.

We had the honor to be appointed by Mr. Marte R. Gomez, Secretary of Agriculture of Mexico, and we convey to you his personal cordial greetings, as well as those of the Mexican veterinary doctors who also want to make known their fraternal wishes for the success of this convention.

Veterinary medicine here, there, and in all the countries of the world, has had the character of a human science, whose discoveries have readily been put in the service of man.

This science was born with the necessity of preserving domestic animals. Its appearance coincided with the remote dawn of civilization. The revolutionary step experienced by humanity when it broke off the old trunk of savagedom in conquest of animated energy, has suffered innumerable changes throughout time; and to the gigantic courage and patience developed to obtain domesticity, was added the perseverance of generations and generations of men, who had to go through the stadia of shepherds, empirical veterinary medicine, primitive cattle-raising and the exorcisms of witches who pretended they could do away with the plagues of animals. Veterinary medicine had to go on with great effort to reach the light now shed by biological investigations of modern pathology, and of modern zoötechnics, breaking through with laboratories and genetic studies as scientific weapons.

Ours is not a romantic science, it is mainly a practical one, which still searches through absolute science to solve the problems of supplies of human necessities. It bases itself on the economical environments in which it is living, and by the appliance of its methods, looks forward to lengthening or increasing the life of animal wealth, or at least, to reducing the risks. Up to this point, veterinary medicine would be a science of an exclusive economical scope, but its action has projections of unsuspected value when it is converted into the technical means which guard that invaluable being called man, against the possibilities of becoming the victim of animal plagues.

Right now the veterinary medicine of the free countries has joined the action realized by the men of the democratic world. In subordination to the needs of the battle-fronts, they are carrying their technical knowledge; great and important assistance is rendered by veterinary doctors in quartermaster services. They are fighting in the laboratories to stop animal plagues that would reduce the supplies of the democracies. They are developing a great plan to save the life of cattle and other domestic species. Their motto is: more meat, more hides, wool, etc., for the armies of the

Presented at the eightieth annual meeting (War Conference) of the American Veterinary Medical Association, St. Louis, Aug. 25-26, 1943.

Director General, Livestock Division, Department of Agriculture, Mexico.

United Nations. This is the way in which veterinary medicine adds the value of technical knowledge to the effort of free men to reach victory in the near future and prepare for the arrival of a fruitful peace in the world.

To prepare for the arrival of such a peace, it is required to realize that the post-war problems demand our immediate and preferred attention, because a sudden and unexpected peace may turn out to be a great and difficult problem. Conventions like the one now celebrated and congresses of technicians are carried out with today's action and tomorrow's plans. A hungry, bleeding, and disorganized world awaits the kind effort of good-will men.

Our being present here is one of the many examples of understanding now existing among the nations of this hemisphere; our greeting emphasizes the ties that, for a long time, have united our two great countries and this strengthening of our friendship and understanding must be considered as the token of a better understanding, and a greater strengthening of the relations of the peoples of North and Latin America.

Colleagues of the United States, accept this cordial greeting sent to you by Mr. Marte R. Gomez, Secretary of Agriculture of Mexico, and the Mexican veterinary doctors, and with it, our best wishes that the resolutions which this convention will reach, may be applied advantageously in solving the complex problems that veterinary medicine faces in this moment of world emergency.

Livestock Sanitary Service of Mexico

FERNANDO CAMARGO, D.V.M.
Mexico City, Mexico

TWO YEARS ago the Mexican delegate at one of your conventions read a paper about the history and situation of veterinary medicine at that time. Today, it is my privilege to present at this honorable assembly the picture that we have now and the general conditions of our profession in the friendly and neighborly country, the Mexican Republic, with the object of giving to you, in a short way, a general idea of the former problems that she attacks now. The veterinary school of the National University of Mexico is the only institution in which to prepare the new veterinarians who, at the time of graduation, the government will consider for work in the different federal veterinary positions.

I am going to talk only about the federal action, because we will be minute to only the particular action state by state. In the federal government, the agricultural department has two important bureaus. One is the Bureau of Animal Industry which is in charge of the following principal chapters:

The developing and increasing of animal husbandry in the states. For this purpose there are six big national experimental stations for breeding animals under the general supervision of veterinarians. These experimental stations have about 80,000 acres of land. The land and crops are very carefully studied with the object of having the better, natural and cultivated grasses and other feeds for the animals. Studies of different domestic breeds are made with the purpose of having animals adapted to the general conditions of soil and climate. In this way, we obtain a real extension work, not only in this matter but in the prophylaxis of animal diseases. In the different ports of entry, authorized for the international traffic of animals and animal products, there is established an efficient service of inspection. In this way, we are working in collaboration with the authorities of the United States. Under these conditions, both our countries stopped the propagation of new exotics of serious animal diseases. This is important if we realize that during the past three years

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From the Mexican Bureau of Animal Research. and veterinarian and lecturer in the Universidad Nacional de Mexico.

we exported to the United States more than one and a half million cattle. The sanitary campaigns have had very good results, especially the ones against equine encephalomyelitis, dourine, anthrax, blackleg, and other diseases.

During the present year, the bureau made an experimental campaign in a restricted area against the derriengue disease produced by a filterable virus. As a result of this work, next year we shall extend this campaign to the other areas of the infected zone. In coöperation with the public health department, we want to proceed with the campaigns against tuberculosis, mastitis, and brucellosis.

The other bureau is the Bureau of Animal Research and in this bureau there are



Dr. Guillermo Quesada Bravo (right), and Dr. Fernando Camargo.

laboratories of research in animal disease (derriengue, encephalomyelitis, salmonellosis). This bureau also is in charge of preparing the different antigens for brucellosis, pullorum disease, tuberculosis, and mallein. The production laboratory is in charge of prepared vaccines against anthrax, abortion, strain 19, chicken pox, and derriengue. In the preparation of this last product, we have to prepare it with nerve tissue of sheep, inoculated with the fixed virus. We have made some experimentations for increasing the immunizing power of this vaccine, but the results are not yet complete. In this laboratory, we also prepare some other bacterins and other biological products for the routine work.

The parasitological laboratory last year described some new species of animal parasites and continued the research. The laboratory of bromatology and poison plants is in charge of the study of the different grasses and animal feeds and of research of poison plants. The Bureau of Animal Research continues the investigation of the artificial insemination, while the Bureau of Animal Industry is applying, in the field, the former's results. Both bureaus are working together on the control of biological and pharmaceutical veterinary products.

The action of the Public Health Bureau has been reinforced for the better control of animal health and their products for protection of human health. All of this work is under the care of veterinarians.

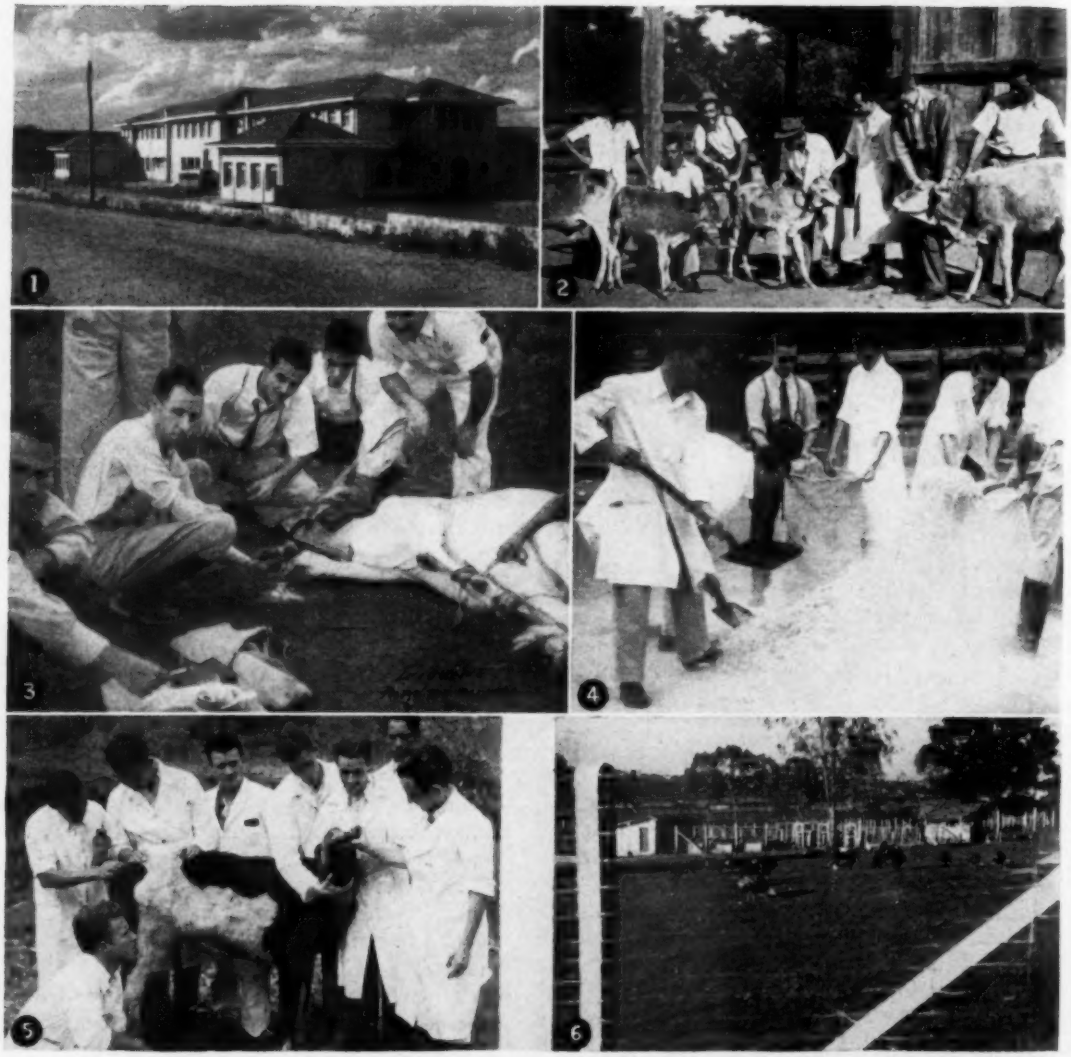
In the Army, our colleagues are in charge of a special quartermaster service and others connected with the actual situation.

The economic conditions also demand a continued improvement of the veterinary effort. We know that our few numbers are inefficient in the face of these problems but we continue working. We are trying to increase the number of veterinarians and improve our technical knowledge. Our country has to protect the lives of 39 million domestic animals.

Year after year, we suffer the loss of millions of pesos from the communicable animal diseases. But, anyway, we are sure that year after year these losses have been reduced. This is not only our problem but it is the problem of friendly countries to which we send a great portion of the national animal production. Especially is this true, if we consider that Mexico has 220,000,000 acres covered with grass and the animal wealth is increasing each year. This brief information is proof that the veterinarians of Mexico are working in their own way for the benefit of the United Nations. I hope that the resolutions of this conference will give the best results.

Efforts to obtain commissioned rank for army veterinarians began at the time of the Civil War and continued until granted in 1916, when the Congress passed the National Defense Act of that year of darkened war clouds. The annual meeting of the American Veterinary Medical Association, at Kansas City in 1917, was the first convention at which army veterinarians appeared in the raiment of commissioned officers.

Veterinary Education in Brazil*



*For these pictures, we are indebted to Dr. A. V. Machado, Escola de Veterinaria, Belo Horizonte, Minas, Brazil.

Fig 1—Administration building and laboratories of bacteriology, parasitology, chemistry, and physiology. Fig. 2—Class in parasitology. Fig. 3—Surgery on the farm near the college. Fig. 4—Practical instruction in mixing livestock feeds. Fig. 5—Class in infectious diseases; Actinomycosis. Fig. 6—The turkey farm connected with the college.

The Hog Disease Situation

D. F. LUCKEY, V.S.
St. Louis, Missouri

THE SWINE growers of this country annually pay several million dollars for vaccinating their hogs against cholera alone. In spite of this great expenditure, the disease is far more prevalent than it should be and, in some places, more prevalent than I have ever known it to be. Glanders, sheep scab, Texas fever, dourine, tuberculosis of cattle, and eleven outbreaks of foot-and-mouth disease, have been either completely eradicated or brought under effective control. Bovine brucellosis, if properly handled, will be added to the list within a reasonable time. Then why has hog cholera been allowed to run riot over the country, causing many hog raisers to spend millions every year for preventive vaccination and many others, who neglect this measure, to lose a high percentage of their hogs?

The reasons are numerous and plainly to be seen. About everything is being done to continue the spread of hog cholera throughout the country. Had someone started out deliberately twenty-five years ago to devise means of keeping the infection alive and more or less generalized, they could hardly have improved upon existing conditions.

Scattering Virus Scatters Disease

In the first place, the sale of hog-cholera virus has been widespread and, through this means, hog-cholera infection has been repeatedly introduced into healthy herds and into cholera-free territory, making it almost certain that the disease would persist. As long as the promiscuous sale and use of hog-cholera virus is permitted, hog cholera will be prevalent. More than one veterinarian can testify to the fact that farmer vaccination and farm-bureau sales of virus have served to keep the infection spread in his territory. Sending a bottle of the virus into a hog-raising county that is free of hog cholera is somewhat like dropping a lighted match in a field of dry grass.

Transporting Sick Hogs a Menace

Shipping sick hogs to market contributes greatly to the spread of cholera. The truck that hauls them returns and, with the infected bedding in it, may go from farm to farm hauling other livestock, thus distributing a little hog-cholera infection in each farmlot.

The meat of these sick hogs, not infrequently, is sold and raw scraps in the garbage start many outbreaks. At one time, during an investigation of the spread of hog cholera in Maryland, it was found that a large percentage of the outbreaks was caused by feeding raw garbage to susceptible hogs.

Shipping stock hogs, as this traffic is now carried on, is another source of hog-cholera infection. Of course, we have certain regulations governing the shipment of stock hogs but they accomplish little or nothing toward the prevention of the spread of cholera. Some regulations permit the shipment of stock hogs "subject to vaccination at destination." Vaccination at destination will very likely save the buyer from heavy losses but in case he has a few sick ones, it will not protect his neighbors. In all probability, these shipped-in hogs spread infection that kills more home-raised hogs than were shipped in. In many instances, the neighborhood at large would have had more hogs if none had been shipped in. The vaccination of stock hogs with serum and virus is often followed by some sick ones. If shipped immediately, the sick ones, though only a few, will certainly carry infection into the neighborhood of destination and may cause other farmers either to lose their hogs or to go to the expense of vaccinating them. Furthermore, very few people pay attention to these shipping regulations, except those who ship by rail and are therefore forced to secure a permit.

Hog Cholera Easily Spread

It is also well known that people take sick and exposed hogs to community sales. The farmers thoughtlessly tramp around in infected sales-barn pens and return to their own hoglots without disinfecting their boots. Such incidents, plus the actual sale of sick or exposed hogs from these com-

munity sales barns, are factors in the spread of hog cholera.

Hog cholera is so easily spread that I have known it to be carried on shoes or boots and on wagon wheels. The dead-animal wagon, loaded with cholera carcasses, is a menace to any farmer whose premises it enters. In spite of the leak-proof bed, there is still danger, as the dirt on the wheels can easily carry infection. The farmer who permits the dead-animal truck to drive into his lot where he has unvaccinated hogs is surely inviting trouble.

Too often, hog raisers are careless in leaving dead hogs lying around to serve as sources of infection. The law requires that the owner shall, within twenty-four hours, *burn* every hog that dies of any disease whatsoever.

In some cases, truckers actually peddle sick hogs to farmers along the way. One day, when I sat down beside a farmer boy in a veterinarian's office, he told me this brief story: "I had 62 nice shoats. A man came along with 6 pigs in a truck. I bought them and put them in with my other hogs. Now, about half of my hogs are dead and the rest are sick." If our educational forces and extension agents were functioning properly, there shouldn't be a farmer in the state so uninformed or unwarned as to do such a thing.

COMPARE WITH FOOT-AND-MOUTH DISEASE

Eleven outbreaks of foot-and-mouth disease, some of them extensive, have been eradicated in the United States without the use of any vaccine. Foot-and-mouth disease is more highly contagious than hog cholera. It is my opinion that if the simultaneous method of vaccination, which requires the use of living virus, had never been discovered, we would have been rid of hog cholera long ago, as they are in the Dominion of Canada, where the use of virus is strictly forbidden. Or, if the use of virus had been properly restricted, we could have eradicated this disease years ago without slaughtering or without paying indemnity on infected hogs as is done in case of an outbreak of cholera in Canada, and as we have done in outbreaks of foot-and-mouth disease in the United States.

A PLAN THAT WORKED

At this point, I will introduce a little Missouri history in support of the ideas herein advanced. In 1916 and 1917, hogs were high and there was much traffic in stock hogs, thereby keeping hog-cholera infection quite well spread. In 1916, we had tried out in 11 counties, with considerable success, what we termed the "school district plan." At the beginning of 1917, we had about 5 million hogs in Missouri worth 15 dollars a head. It appeared that we were heading into a big outbreak of hog cholera. To ward it off, we extended the school district plan to the entire state. A letter was sent to each of about 9,000 school district clerks to be read at the annual school meeting early in April. In this letter, hog raisers were advised to watch their hogs closely and to call a deputy state veterinarian at the first sign of any sickness. The state paid the *per diem* and mileage, and the owners paid for the serum and virus used. We thus were able to pick up 2,476 cholera affected herds in 102 counties. These herds contained 102,838 hogs, averaging 20 per cent sick animals. The final loss was 11 per cent. We saved the owners a little over one million dollars and it cost the state exactly $18,129.73.

The same plan was carried on through 1918 except that the owners paid all expenses, state funds having been exhausted. The important thing is that we reduced the outbreaks that year to about one-fourth of the 1917 figures. Still more important, in 1919 there was practically no hog cholera in the state. In other words, we had effectively controlled the disease.

During this time, and until hog cholera was controlled, we had about 14 federal inspectors stationed in the state who checked all of this work. Actual visits were made to the various herds and the hogs counted. The figures given and the facts stated are based upon personal visits and accurate official estimates.

In order that these comments may not be considered an afterthought and a plea for the selfish interests of the veterinary profession, I will quote from my January, 1918, annual report to the Missouri State Board of Agriculture, pages 132 to 135:

> Investigations show that laymen (not graduate veterinarians) vaccinated 232 herds of hogs, containing 17,950 head. Approximately one third of these herds was well and entirely free from cholera. There was a loss of 3,263 head, or 18 per cent, in the 232 herds vaccinated by laymen. Besides the loss of an additional 7 per cent of the hogs over the

loss in sick herds vaccinated by competent, graduate veterinarians, *there were numerous outbreaks of cholera started in free territory as a result of this incompetent vaccination.* Next to the spread of hog cholera by the shipment of stock hogs, its spread by lay vaccination looms up as the greatest menace to hog raising in this state.

As there is and can be no standard of efficiency set or required, *lay vaccination must be prohibited or hog cholera will remain a permanent menace to the hog industry of this state.*

It is our desire not only to make hog raising an absolutely safe proposition in this state, but to do so without the *necessity of the perpetual tax for vaccination.*

Every hog raiser, without exception, should keep a sharp lookout for any sickness among hogs and immediately report such sickness to the nearest available official veterinarian. If cholera is found, the owner of the affected herd and all those who own exposed herds, should immediately vaccinate. *There vaccination should stop.*

It is plainly to be seen that any campaign for the control of hog cholera which is based upon universal vaccination is doomed to failure.

If every hog raiser can be induced to detect and report threatened disease among hogs, as indicated in our general plans, hog cholera will be kept under control with a minimum loss to the owner of the affected herd and his neighbors, a minimum cost to the state in salaries and expenses, and *without a perpetual tax being levied for continual vaccination.*

THE VETERINARY PROFESSION COULD DO THE JOB

As has been said, many diseases of livestock, the control of which has been left to the veterinary profession, have been controlled, and several of them, including 11 outbreaks of foot-and-mouth disease, have been completely or practically eradicated. The exceptions are the diseases the germs of which are indigenous to the soil. Among these are anthrax, blackleg, hemorrhagic septicemia, and swine erysipelas. In about 1917 and 1918, the veterinary profession was in a position to eradicate hog cholera, as had been done in Canada and as we did in Missouri. When we finished in Missouri, we had practically one-twelfth of the hogs of the United States free from the danger of cholera. It would have been a relatively easy matter to finish the job in the whole United States within the next few years, if it had been left to the veterinary profession. The veterinary profession is "eradication minded."

WHY THE PRESENT SITUATION?

Then just why have things shaped up as they are? The answer is that quackery is crowding out, more and more, our trained veterinary service. A quack is defined as one who presumes to medical skill he does not possess. Quackery is running rampant in Missouri and other parts of the country. After the revolution in Russia, it was reported that many trained veterinarians were "purged" and then an extensive livestock production campaign launched without sufficient trained veterinary personnel to safeguard it. As a result, disease destroyed much of their livestock and years of near-famine followed. It has been reported that glanders destroyed their horses until there was not enough horse-power to raise a wheat crop; that as many as 400 people at a time lay dying of glanders in the hospitals in Moscow; and that this disease became so prevalent among the people that men, women, and children affected with glanders were put to death. Russia realized her mistake, about-faced, and established 25 veterinary colleges, educated 1,250 graduates a year, with a goal of 250,000 trained veterinarians. Before the present war broke out, Russia was rapidly becoming one of the best fed and best clothed nations of the world. The Russian power in the present war is partly due to a trained veterinary service, without which no civilization can exist.

Why our pitiful state of affairs? To relate the story back of it requires plain speaking. We do not impugn the motives of any one, but facts speak for themselves. As has been said, in 1917 and 1918, the veterinary profession was in a favorable position to effectively control hog cholera. Along came a flock of county agents. It is a matter of history that they started a vigorous campaign to teach the farmer to vaccinate his own hogs and so "save a veterinary bill." They emphasized this idea of saving a veterinary bill until a large percentage of farmers in some areas became skeptical about their veterinarian. Some of these extension agents have been more interested in selling the farmer something out of which they themselves could gain

either profit or prestige than in the eradication of disease. Some agents and farm bureaus stock and sell to farmers all kinds of biological products, including hog-cholera virus which contributes greatly to the spread of the disease. They have practically ignored the educational function of teaching farmers not to buy and sell sick hogs, and to refrain from many other common practices that will spread disease. As far as disease control goes, our agricultural extension service has been an almost complete failure in many counties and states.

One of the most ludicrous activities engaged in by some agricultural college graduates and vocational agriculture teachers is the instruction of farmers and high school boys in methods of vaccinating livestock. One such teacher took his class into a lot where there were sick and dead hogs and then let them go to their homes, presumably carrying cholera infection on their shoes. It was unintentional on his part but he was unwittingly contributing to the spread of disease, the need for vaccination, and to livestock losses. Such quackery has grown rapidly and in some states it is rampant. Young veterinarians hesitate to locate where such conditions exist and this is a serious matter in states such as Missouri, where the average age of qualified veterinarians is 55 years.

If the annual cost of, let us say, 10 million dollars for hog-cholera vaccination, plus an estimated loss of 20 million dollars worth of hogs (because they were not properly immunized) were all, it would not be so bad. But too many farmers have become so vaccination minded that they want to vaccinate for everything, a condition which has prepared the field for a rich harvest for the quack, unscrupulous manufacturers of "animal medicines" and veterinary biological products. Thus, for nearly two years, at least two publications speaking for the drug industry and retail druggists have carried on an intensive campaign to the end that drug stores should take over the sale and distribution of all animal medicines and so cash in on what they estimate to be a 70 million dollar business with livestock and poultry growers. Druggists are attending meetings where they claim to receive "expert" instruction in the diagnosis and treatment of animal and poultry diseases and, of course, how to become expert in the sale of animal medicines to their farm customers.

By this scheme, every rural druggist is to be an "animal disease expert" in addition to his multifarious activities in specializing on sandwiches and banana splits, cosmetics and other beauty aids, vitamin sales, and what not. That such a program would sooner or later reach new depths of absurdity was evidenced in a recent issue (Nov. 1943) of *The American Druggist* under the headline, "Even the Fountain Help Know About Animal and Poultry Health Products," of a story about a Kansas druggist who "has found it pays to give his clerks, including high school girls behind his soda fountain, a thorough course of instruction in selling animal and poultry health products. As a result, his soda dispensers can talk turkey or chicken troubles, or sell serums to farmer customers *as easily as they concoct an ice cream soda.*" [Italics ours.]

There it is, and the farmers are showing a ready willingness to be humbugged into buying millions of dollars worth of stuff, most of which they do not need. As this type of quackery spreads, so spreads the disease that stands between the livestock grower and solvency or prosperity. It is my opinion that one day it will be shown that something far more disastrous than we can now envisage has resulted from unrestricted sales of hog-cholera virus and similar products. We shall have to await developments, but the breakdown of an efficient animal-disease-control service is certain unless agriculture and the livestock industry open their eyes—and their minds—to the ultimate possibilities.

In the final analysis, and as an example, it is perhaps not so much *who* should use hog-cholera virus, but *when, where,* and *how* it should be used. The experience of the past twenty-five years shows plainly that something is wrong. Veterinarians realized a long time ago that the general use of virus would keep hog-cholera infection alive, but efforts to limit its use by law were met with by furious opposition and charges that veterinarians wanted to "monopolize" the procedure of vaccination. However untrue these propositions were, the fact remains that the agricultural and livestock interests have helped to perpetuate a condition which saddles upon their members a multi-million dollar annual bill for

vaccination, quack remedies and useless losses from preventable diseases.

JOCKEYED INTO FALSE POSITION

The veterinary profession has been jockeyed into the false position that its opposition to quackery is based on selfish interest, when nothing is further from the truth. Veterinarians want to eradicate disease whenever possible. The whole history of the veterinary service proves this. I believe that hog cholera can be eradicated. The veterinary profession will do its part, the leading part, if permitted. If the extension service and other agricultural agencies will "team up" with the veterinary service, the job can be done. If they fail to do so, the farmers of this nation face the prospect of going on through the years paying out huge sums of money for vaccination or of suffering large losses if they fail to have their herds properly immunized.

Living with Infectious Diseases of Livestock

The *Kansas Farmer** points out editorially that in 1942 over 2,000,000 hogs were lost from cholera, "enough to feed a million men for a year," and that if hog cholera had been handled the same as foot-and-mouth disease millions of dollars would have been saved to the farmers of this country. The government's policy of slaughtering animals to master foot-and-mouth disease "was thought too costly and shocked the breeders."

"May we add," the editor says, "that it is cheaper to slaughter TB infected cattle than it is *to live with the disease.* Few people appreciate how effective the government has been in handling some of the animal diseases that caused severe losses." The editor warns that tuberculosis has not been as completely eradicated as foot-and-mouth disease.

The understanding of animal diseases thus conveyed to the American farmers is as much appreciated by the independent practitioners as by the publicly employed veterinarians engaged in the eradication projects mentioned. But, to have told the whole story, the fact should have been stated that foot-and-mouth disease and other exotic contagions of livestock are always "just around the corner," ready to give breeders a greater shock than the killing of a few animals.

*President Charles W. Bower conducts the veterinary column of this paper.

Hog Cholera, Swine Erysipelas, What?

I had an interesting experience last winter with a herd of hogs that contracted what I feel was cholera. They were all garbage-fed. There was a fine Berkshire boar and several young boars, 40 to 50 pigs, and what interested me most were 20 Chester White sows. Several were dead and a lot of them were sick. There were purple patches and depressions on their bellies. The next day there was a ton of dead and more sick ones. None of the sows was sick at the time but several had some fever Not one of the sows delivered a pig but was subsequently bred and farrowed. They had resorbed their fetuses just as bred bitches do when they contract distemper. I know you can tell me when hog cholera strikes a herd and whether there is any published record of such cases. Maybe this is old stuff and the hogs had hemorrhagic septicemia. When I returned to hold post-mortem examinations, I found that the dirty owner had dumped the dead ones into the river.—*Leon F. Whitney, D.V.M., Orange, Conn., in a letter to C. N. McBryde, Ames, Iowa, referred to John F. Bryant for reply.*

Reply.—In answer to your direct question as to whether resorption of the fetuses is to be expected when cholera strikes pregnant sows, I believe it would be answered in the negative, for if cholera killed the fetuses it would also have killed the dams. I know of no published report on the subject. In making a differential diagnosis of such cases, one thinks of brucellosis, erysipelas, and streptococcic infection, keeping an open mind on cholera. Skin discoloration occurs in all of these diseases. Brucellosis might have caused the deaths. Subacute erysipelas may also have been a factor and streptococcicosis can cause disease closely resembling cholera. Garbage-fed hogs should always be vaccinated against cholera. Your client should have learned the lesson you taught him.—*John B. Bryant, Mount Vernon, Iowa.*

The price-conscious housewife has yet to learn that the 16-cent steer on the hoof is not all edible meat.

The Relative Value of Sedimentation and of Saline-Egg Culture in the Examination of Bovine Vaginal and Preputial Samples for Trichomonas Foetus

DATUS M. HAMMOND, Ph.D., and DAVID E. BARTLETT, D.V.M.
Beltsville, Maryland

TWO METHODS are commonly employed, often in conjunction, in making examinations for the presence of viable specimens of *Trichomonas foetus* in samples of vaginal and preputial secretions of cattle. These methods may be designated as (a) direct and (b) cultural. The direct method is simply the microscopic examination of a small amount of the sample soon after collection. The cultural method involves a 24-hour incubation of the sample in suitable culture medium prior to miscroscopic examination.

The purposes of this article are: (1) To present certain observations that support the contention of Andrews and Miller[1] that the efficiency of the direct method is increased if the trichomonads are allowed to settle two or three hours before microscopic examination is made, and (2) to report data indicating that routine culturing on saline-egg medium has relatively little practical value in diagnosis of bovine trichomoniasis.

(1) SEDIMENTATION

In carrying out routine direct and cultural examinations for *T. foetus* on the experimental herd maintained at the Zoölogical Division, at Beltsville, Md., the writers made the following comparison:

For three and one-half months — from Sept. 15 to Dec. 31, 1941—samples were examined by a procedure similar to that described by Rees.[2] Immediately upon being collected by means of the pipette, most of the sample was placed in a tube containing culture medium, and the remaining small portion was placed on a slide for direct microscopic examination. Samples were collected weekly from the entire herd and daily, except Sunday, from known infected females and from females recently bred to infected bulls. During this period, 859 samples from 23 females were collected and examined. Seven females became infected during this period; 415 samples were obtained from them. One hundred and seventeen positive samples were discovered in this latter group by the two methods of examination employed, 103 (88%) being demonstrated by direct examination and the remaining 14 (12%) by culture only. Of 106 samples from 6 bulls, 2 of which were infected for all or part of the period, 24 samples were found positive by direct examination and none by culture only.

During the succeeding four and one-half months—from Jan. 1 to May 15, 1942—the routine described above was followed as before on all the samples, but an additional examination was made on some of them after one to three hours of sedimentation. It was assumed that all samples positive upon immediate direct examination would be found positive after sedimentation. In the case of vaginal samples, a drop of material was removed from the bottom of the tube; in the case of preputial samples, a drop was taken from the superficial layer of the sediment. During this period, 1,417 samples from 23 females were collected and examined. Two females had infections continued from the preceding period, 1 female being reinfected, and 7 females, which were negative during the first period, developed infections, making a total of 10 infected females in the herd during the second period; 640 samples were obtained from these animals. The negative samples chosen for reëxamination were from animals, the infection histories of which indicated that small numbers of trichomonads might be present. There were 221 positive samples, 194 (88%) being demonstrated by imme-

This work was carried out at the United States Department of Agriculture, Beltsville Research Center, Beltsville, Md.

From Zoölogical Division, Bureau of Animal Industry, Agricultural Research Administration, U. S. Department of Agriculture.

[1]Andrews, Justin, and Miller, Fred W.: Infection with *Trichomonas Foetus* in Heifers. Am. J. Hyg., *27*, (1938): 235-249.

[2]Rees, Charles W.: Observations on Bovine Venereal Trichomoniasis. Vet. Med. *33*, (1938): 321-324.

diate direct examination, 22 (10%) by examination after sedimentation only, and 5 (2%) by culture only. Similar results were found in examination of the 114 samples from 7 bulls, 3 of which were infected during all or part of the period. There were 40 positive samples, 37 of which were demonstrated by immediate direct examination,

TABLE 1—Numbers of Trichomonads* in Samples Originally Containing Many Organisms, Preceding and Following a 24-hour Period in Culture Medium, and in 0.7 per cent Saline

Sample No.	Before Culturing	After 24 Hours in Culture Medium	After 24 Hours in 0.7% Saline
1	6.5	7.0	3.0
2	15.0	60.0†	20.0
3	25.0	40.0†	7.0
4	2.0	1.0	0.0
5	5.0	25.0†	2.0
6	13.0	15.0	2.0
7	11.0	0.0	0.0
8	3.0	2.0	0.0
9	5.0	1.0	0.5
10	40.0	40.0	0.0
11	1.5	0.5	0.5
12	0.5	1.0†	0.0
13	1.0	8.0†	1.5
14	5.0	7.0	0.2
15	6.5	16.0†	0.0
Total	140.0	223.5	36.7

*In thousands per cow.
†Six samples showing marked increase after 24 hours.

2 by examination after sedimentation only, and 1 by culture only. These results indicate that the efficiency of diagnosis is increased by examination of the sediment.

(2) Culture

The method of cultural diagnosis employed in the routine examinations reported here was similar to that developed by Avery and Garlick.[3] The samples were placed in tubes containing the egg-slant-saline culture medium described by these workers, and examined microscopically after twenty-four hours of incubation.

In the present study, the number of positives found by culture alone was relatively small. In the first series of examinations on heifers and cows, there were 14 out of 117, and in the second series, in which an additional examination was made after sedimentation, there were 5 out of 221 positive samples. Avery and Garlick *(loc. cit.)* found 30 of 35 known positive samples to be positive by direct examination. Egg-slant-saline cultures of these same samples also revealed 30 positives, in 5 of which trichomonads had not been found on direct examination. Thus, 5 additional positive findings resulted, and 5 previously positive samples were missed by the cultural method. Similarly, Andrews, Kerr, and Porter[4] found some samples positive by culture only and others by direct microscopic examination only. These authors concluded that although the trend of their results indicated the advisability of using both methods, statistical analysis

TABLE 2—Numbers of Trichomonads in a Measured Drop from the Bottom of Tube in Sample Originally Containing Few Organisms, Preceding and Following a 24-hour Period in Culture Medium

Sample No.	Before Culturing	After 24 Hours in Culture Medium
1	40	18
2	5	15*
3	2	25*
4	1	2/3†
5	1/3†	0
6	2	1
7	1	0
8	2	1/3†
9	2	6*
10	8	0
11	1/3†	0
12	1	0
13	2	1
14	1	0
15	1/3†	1/3†
16	2	1
17	2	3
18	1	50*

*4 samples showing marked increase after twenty-four hours.
†3 drops examined.

showed that the combination of methods could not be depended upon to give a significantly higher incidence of positives than either single method.

In order to determine whether trichomonads actually increase in number during a 24-hour period in culture, the following test was made. Fifteen samples in which trichomonads could readily be demonstrated were

[3]Avery, John L., and Garlick, George G.: A Simple Medium for the Cultural Diagnosis of *Trichomonas Foetus* Infection in Cattle. Proc. Helminthol. Soc., Wash., 7, (1940): 27-29.

[4]Andrews, Justin; Kerr, Kathel B., and Porter, Dale Albert: Cultural and Microscopic Diagnosis of *Trichomonas Foetus* Infection in Cattle. J. Parasitol., *21*, (1936): 452.

selected. Each sample was thoroughly agitated, the number of trichmonads was determined with the aid of a haemocytometer, and the material was divided into two equal portions, one portion being placed in a tube of saline-egg medium and the other in a tube of 0.7 per cent saline. The tubes were kept at room temperature, and trichomonad counts made at the end of twenty-four hours. The results are shown in table 1. Marked increase in the number of trichomonads occurred in 6 of the 15 tubes containing culture medium, and in none of the saline tubes. With two exceptions, there was a marked decrease in the number of organisms in the saline tubes.

Since diagnosis is most difficult when very few trichomonads are present and a simple method of increasing the number of organisms would be of practical value in such cases, the following test was made to determine the effect of culture on 18 samples with very low counts. In each case, a count was made of the trichomonads in a measured drop (approximately 0.05 cc.) drawn from near the bottom of the tube one to three hours after the sample had been obtained. The samples were kept in saline-egg medium at room temperature for twenty-four hours and again examined. The results are shown in table 2. In only 4 of the 18 samples was there evidence of multiplication; in 6 cases no trichomonads were found on the second examination. These results indicate that the use of egg-slant medium as employed by the writers was of little practical value in routine diagnosis of bovine trichomoniasis.

CONCLUSION

On the basis of the findings reported here, it appears (1) that the efficiency of diagnosis of trichomoniasis by means of microscopic examination of vaginal and preputial samples is improved if direct examination of the samples is made after one to three hours of sedimentation, and (2) that the efficiency of diagnosis is not improved materially through the routine culturing of samples on saline-egg medium.

Know why you like your business? It's animals, the greatest of man's possessions, and the most useful of God's creation, 'cept you. They're interesting, they're useful, they're indispensable, just like yourself. Know anything better?

"Of Interest to the Practitioner"

Writes a veterinarian of many contacts: "I am picking up occasional criticisms claiming that the JOURNAL does not carry enough items of interest to the practitioner."

Since in inches and ems, month in and month out, the JAVMA contains more material "of interest to the practitioner" than, we believe, any combination of journals in the same field, and does so systematically, there still must be want of accord as to what is "of interest to the practitioner." Having driven the roads in practice, we're not unaware of the consternations of the practitioner, but somehow, in the journalistic field, it is hard to depart from the idea that keeping the profession among the respected has value too. No one needs that more than the practitioner. Publishing the best recipes for colic and worms won't lift the rating of his occupation among the neighbors. Of course, making a living comes first. In American life, the idea that "business is business" came over with Columbus on a famous business trip back in 1492, but in the exploitation of what we love to call a learned profession, it is good business to take it apart once in a while to see what makes it tick.

The veterinary problem is a hard knot to unsnarl, largely because we have doted a lot on the diseases of animals and not enough on preventing the ailments of the profession itself.

There is no limit of desire, on the part of those responsible, to make the JOURNAL of real value and interest to all readers, but there is a limit to the amount of material in any one category which can be printed in each issue. As an official mouthpiece of the Association, we are obligated to maintain a rather definite journal pattern as a record and running commentary on affairs veterinary. We hope that the great majority of practitioners, who constitute the substance of the profession and association membership, are not only "interested" but actually concerned in all developments affecting them and their calling, as well as the everyday "helpful hints."

What we are trying to say is: We endeavor to make every issue meet the many demands made upon it, and in so doing we welcome your comments. They help.

Enterotoxemia in Feedlot Lambs in Connection with an Outbreak of Coccidiosis

H. MARSH, D.V.M., and E. A. TUNNICLIFF, D.V.M., M.S.
Bozeman, Montana

INFECTIOUS enterotoxemia (pulpy kidney disease) of sheep has been studied extensively in New Zealand and Australia, and has been shown by Bennetts,[1] Gill,[2] and Oxer[3] to be caused by the toxin of *Clostridium welchii*, type D. Boughton and Hardy[4] have reported this disease in young lambs in Texas, and Shaw, Muth, and Seghetti[5] have reported it in Oregon. Newsom and Thorp[6] have found that intestinal filtrates from feedlot lambs, dying of overeating contained the toxin of *C. welchii*, type D.

Enterotoxemia of sucking lambs has been observed several times in Montana in the past ten years, although the range conditions under which the majority of Montana sheep are handled, are not conducive to the development of diseases of this nature. In 1940, three outbreaks of enterotoxemia were investigated. In two of these outbreaks, the toxin was determined to be type D. In the other instance, the lesions in the lambs differed from the typical enterotoxemia lesions, and typing the intestinal filtrate showed that the toxin was not type D. A strain of *C. welchii*, isolated from the intestinal contents, was shown by cultural reactions to be *C. welchii*, type C.

In 1940, an investigation was made of deaths from overeating in feedlot lambs in which the bacteriological findings were atypical, in that filtrates of intestinal contents proved to contain toxin of *C. welchii*, type A, rather than type D.

The published reports of enterotoxemia of lambs caused by *C. welchii* toxin have described the condition either in lambs about 1 month old, or in feedlot lambs on full feed. The purpose of this report is to record the occurrence of this type of enterotoxemia in feedlot lambs in the early stages of feeding.

In the fall of 1942, this laboratory conducted a feeding experiment in a feedlot near Sidney, Mont., in connection with a project for the study of coccidiosis. This experiment was carried out in coöperation with a commercial lamb feeder. The lambs were placed in the feedlots on October 20. In 1 lot of 715 lambs, coccidiosis developed, diarrhea first having been observed about November 1. By November 7, there were about 150 cases of coccidial diarrhea in this lot of lambs.

There was some death loss, and the deaths were not confined to the sheep showing clinical evidence of coccidiosis. On November 7, 3 good lambs which showed no clinical signs of coccidiosis died, and were subjected to autopsy. One of these was found dead in the morning, and the autopsy was made several hours after death. In this case, the only gross lesion recognized was a typical "pulpy" kidney. The colon and its contents were removed and taken to the laboratory.

The second lamb was a strong lamb with no history of diarrhea, which died suddenly. An autopsy was made a short time after death. The kidneys were congested. There was slight hyperemia of the mucosa of the small intestine, with marked hyperemia of the last foot of the ileum. The mucosa of the cecum and colon showed streaks of hyperemia. The cecum and por-

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From the Montana Veterinary Research Laboratory, Montana Experiment Station and Livestock Sanitary Board, coöperating. Paper No. 175, Journal Series, Agricultural Experiment Station, Montana State College.

[1]Bennetts, H. W.: Infectious Exterotoxemia of Sheep in Western Australia. Council Sci. and Ind. Res. Bul. 57, 1932.

[2]Gill, D. A.: Infectious Exterotoxemia and the *Clostridium welchii* Group, with Special Reference to So-Called Pulpy Kidney in Lambs. New Zealand J. Sci. & Technol. *18*, (7936): 106-119.

[3]Oxer, D. T.: Pulpy Kidney, or Acute Infectious Enterotoxemia of Sucking Lambs Due to *B. Ovitoxicus* (Bennetts). Council Sci. and Ind. Res. Pamphlet 35, 1932.

[4]Boughton, I. B., and Hardy, W. T.: Infectious Enterotoxemia (Milk Colic) of Lambs and Kids. Texas Agric. Exper. Sta. Bul. *598*, 1941.

[5]Shaw, J. N., Muth, O. H., and Seghetti, L.: Pulpy Kidney Disease in Oregon Lambs, Oregon Agric. Exper. Sta. Bul. 367, 1939.

[6]Newsom, I. E., and Thorp, Jr., Frank: The Toxicity of Intestinal Filtrates from Lambs Dead of Overeating, J.A.V.M.A., *93*, (1938): 165-167.

tions of the ileum and colon, with their contents, were taken to the laboratory.

The third lamb was another strong lamb in good condition, showing no symptoms of coccidiosis. This lamb was seen to lie down. It soon developed convulsive muscular spasms, and died within one-half hour of the time it was first noticed to be sick. An autopsy was made immediately which showed no gross lesions, except some congestion of the kidneys. The cecum and portions of the ileum and colon were taken to the laboratory.

The undiluted intestinal contents in each of the 3 cases were centrifuged and filtered through Mandler filters. The filtrates killed white mice when injected, intraperitoneally, in doses of 0.05 cc. The original cultures from the intestinal contents, made in liver broth containing brain, were toxic for mice, when the supernatant fluid from a centrifuged culture was inoculated intraperitoneally. These cultures developed abundant gas, and contained *C. welchii*, with other organisms.

The toxic intestinal filtrate from one of the lambs was typed by neutralization with antitoxins of *C. welchii*, types A, B, C, and D. The types B and D antitoxin neutralized the toxin in the filtrate, while types A and C antitoxin failed to neutralize. This established the toxin as type D, since types B and D antitoxin both neutralize type D toxin, while types A and C antitoxin do not neutralize type D toxin.

For comparison with these cases of enterotoxemia, cultures were made from the intestinal contents of a lamb from the same lot, which died on the same day, in which the clinical symptoms and autopsy findings were characteristic of coccidiosis. The primary cultures in liver broth containing brain were not toxic for mice, in contrast to the cultures from the 3 cases of enterotoxemia. No filtrates of the intestinal contents were prepared from the coccidiosis case.

The enterotoxemia of feedlot lambs described by Newsom and Thorp occurred in the advanced stages of fattening, and was associated with the consumption of a large grain ration, while the deaths from enterotoxemia observed by the authors in connection with an outbreak of coccidiosis occurred in the early stages of feeding when the amount of grain in the ration was small, the lambs having been in the feedlot only two weeks. It is possible, however, that in these lambs the same condition existed as occurs when a feeder brings his lambs to full feed too rapidly. At the time, when these deaths occurred, about 150 out of 715 lambs were sick enough with coccidiosis so that they were slow in going up to the feed, or failed to eat. The feeding space was not cut down nor was the amount of feed reduced, with the result that the stronger, more greedy lambs had an opportunity to consume an amount of grain intended for several lambs.

These observations indicate that in case of an outbreak of coccidiosis, or other conditions in feedlot lambs which cause them to go off feed, there may be additional loss from enterotoxemia, which might be avoided. The preventive measures advised are to immediately remove to a hospital corral any lambs that refuse feed, and cut down the feeding space and amount of feed accordingly.

Tick Eradication

"Popular support replaces violence," is the title of a USDA release of November, 1943, and we quote: "Scientists of the Bureau of Animal Industry performed the basic research on the cause and transmission of cattle-tick fever. . . . But in spite of loyal support by millions of progressive citizens, the campaign, especially in the early years, was received with skepticism which sometimes developed into open opposition and acts of violence such as dynamiting of dipping vats, attacks on inspectors, and several murders. Tick eradication was often a political issue. The lower courts handled many cases pertaining to compliance with dipping procedures. The United States Supreme Court rendered two decisions supporting tick eradication." As is written elsewhere in this issue, "Organized farmers and the veterinary profession often work at cross purposes."

Southdale Sheep

The Southdale is a cross breed of sheep under development by geneticists of the USDA farm, Middlebury, Vt. It is a cross between the Southdown and the Corridale, combining the mutton qualities of the former with the wool qualities of the latter. It is an improved model designed to meet New England needs. Second, third, and fourth generations show promise, the announcement says.

Hypertrophy of the Prostate Gland

JOHN D. GADD, V.M.D.

Towson, Maryland

SINCE hypertrophy of the prostate gland is found in old dogs and can exist in young ones, it merits more consideration than it has received. Also, since carcinoma or other malignancy of the prostate is rare, according to Schlotthauer,[1] Schnelle,[2] and Schlotthauer and Millar,[3] operating on the gland itself is logical. That is the primary purpose of this paper. To the other extreme, I want it understood that I do not regard all hypertrophies of the prostate as surgical cases. A careful diagnosis is needed. Osler once said that the difference between a good and a bad diagnostician is his ability to make a rectal examination, A careful diagnosis is needed for successful surgery. With a history of difficulty in defecation, frequency and difficulty in urination, dribbling of urine, dribbling of light colored blood or urine tinged with blood, perineal bulging, and perineal hernias, one should think of prostate trouble.

Many cases of chronic prostatitis in which infection is present, as shown by bacteriological and microscopic examination for leucocytes on the first flow of urine, respond to massage and sulfathiazole dosage. The perineum should be examined for relaxation or bulging. Upon rectal examination, when the finger is inserted in the rectum, the tonus of the anal sphincter should be noted, for in advanced stages of hypertrophy, the anus loses a part of its tone. The rectum should be examined for diverticula and for diffuse relaxation of the supporting structures. Sometimes, the rectum is constricted in the region over the diseased prostate or just posterior to it, due to the pain from the prostate being pushed up in the pelvic cavity from straining. Abscesses and cysts do not break through the capsule of the gland as there is a double layer of peritoneum over it. The adhesions between the gland and the rectum are due to the inflammation beneath the capsule. With long standing hypertrophies, the surrounding pelvic fascia and supporting membranes are relaxed. Result: an emptiness in the pelvic cavity, and when the animal strains, the prostate gland and intestines readily prolapse into the pelvic cavity. These cases are on the verge of developing into perineal hernias.

The prostate gland can be examined best with one finger in the rectum and the other hand palpating through the flank. The examination of the prostate should be complete, taking into consideration its size, shape, prominence, and effect on the lumen of the rectum. Each lateral lobe is studied separately and its size, enlargement, contour, consistency, tenderness, and adhesions noted. With the ordinary type of hypertrophy, the gland is large, smooth, tense, and elastic. For differentiation, if the gland[4] is very large and soft, one must consider sarcoma. Where the induration is pronounced, having a stony hardness, cancer[5] must be suspicioned. Schnelle[2] cites that carcinoma of the prostate causes a shrinking and hardening of the gland, rather than enlargement. If the gland is hard and nodular, calculi may be present. These can be diagnosed by x-ray.

[1]Schlotthauer, Carl F.: Observations on the Prostate Gland of the Dog. J.A.V.M.A., *81*, (Nov. 1932): 645.

[2]Schnelle, Gerry B.: The Bladder and Prostate Gland. North Am. Vet. (April, 1940): 227.

[3]Schlotthauer, Carl F., and Millar, J. A. S.: Carcinoma of the Prostate Gland in Dogs. J.A.V.M.A., *99*, (Sept. 1941): 239.

[4]Young, Hugh: Benign Hypertrophy of the Prostate Gland. Text-Young's Practice of Urology, *1*: 449.

[5]Young, Hugh: Benign Hypertrophy of the Prostate Gland. Text-Young's Practice of Urology, *1*: 449.

Some prostatic enlargements proliferate forward and are hard to palpate unless the dog relaxes. If the bladder is distended, as is often true, it must be evacuated before the gland can be palpated.

I believe many perineal hernias are the result of some form of hypertrophy of the prostate gland, and we can explain the entire physiopathological picture as follows: As the prostate gets larger, it encroaches upon the urethra since the gland is restrained by its capsule. Because the flow of urine through the urethra is thus compromised by obstruction from the gland, the dog must strain to force out the urine from the bladder. As the obstruction becomes greater, the passage of urine becomes more difficult. Accordingly, the bladder enlarges and this stretching is painful. When the dog tries to relieve himself, he naturally increases the intra-abdominal pressure in order to force the urine by the obstruction. The net result is that the dog must strain more and more in urinating. The perineal muscles and fascia become weakened, the perineum bulges, and finally, a full bloom bilateral perineal hernia results. Sometimes, the weakness of the pelvic floor occurs as a diverticulum of the rectum, commonly called a rectocele. Without the pathlogical condition of the prostate gland corrected first, the chance of a perineal hernia operation being successful is greatly decreased. In other words, it should be a two-stage operation, the first being the prostate operation and the second consisting of correcting the hernia.

The preoperative care should be thorough. Most of them can be operated upon immediately. With any signs of uremia or circulatory failure, operation should be deferred. The dog should then be given digitalis to enable him to stand an abundance of water the kidneys need to keep active, and to mechanically reduce the amount of urinary infection and residual urine. On urinalysis, if the specific gravity is below 1.010 (indicating a chronic interstitial nephritis), one should not operate.

Preoperative medication consists of atropine and morphine, injected forty-five minutes prior to the operation. Ether is used for anesthesia.

Operation.—Our method of approach is suprapubic and intraperitoneal. That is, the incision is made alongside the penis from a point approximately ½ inch in front and to the side and back to the brim of the pubis. Incision in the abdominal wall[6] is the same as for an operation more anterior in the umbilical region. It should be remembered that the peritoneum is much thinner posteriorly and, therefore, should not be separated from the rectus muscle, and on coming out, the peritoneum should be sutured with a small portion of muscle in the loop to reinforce the fragile peritoneum. On entering the abdomen, the omentum, and the intestine are packed out of the way. The right hand is inserted down toward the brim of the pelvic inlet, and placed under the prostate gland as it is pulled forward and upward with a wet sponge on the gland for traction. The gland is examined, as explained before, even more thoroughly. If a simple hypertrophy, the capsule is incised by a double convex incision, 1 to 1½ inches long, down into the gland for approximately ⅛ inch in an area of each lateral lobe where the blood supply is the least. Usually, the right lobe is the larger. It is necessary that the septum dividing the two lobes be found so that the smaller lobe may be sectioned also. The tension is released on the lobes and the gland is allowed to expand into the abdomen. It has been my experience that in four cases the gland decreases to less than half its former hypertrophied size in less than two months.

The cause of the glandular atrophy may be explained by two purely speculative hypotheses. The blood and nerve supply lie in and just beneath the capsule covering the gland. By sectioning each lobe, such interference in circulation and nervous stimuli may result in atrophy. The second explanation is that by mechanically releasing the tension on the gland it may result in a more normal function and not in a compensatory action due to the irritation that was formerly present. In our earlier cases, the sections were made and covered by omentum as well as possible. Now we sprinkle sterile sulfathiazole powder over the raw surfaces. This drug has a more hemostatic action than other sulfonamides.

It is not necessary to remove a large or deep section of the glandular tissue. All that is necessary is the splitting of the capsule and removal of enough of the struc-

[6]Gadd, John D.: The Use of Silk Sutures in Veterinary Surgery. J.A.V.M.A., 97, (March, 1940): 415-417.

ture of the gland so that the edges will not meet too easily. If cysts are present with the hypertrophy, as is often seen, it is better to curette them to prevent recurrence of the cystic formation. In man, it is essential to make the suprapubic approach extraperitoneal and establish drainage. In our experience with the dog, this is not necessary as will be shown by the different varieties of hypertrophic prostate cases. It is needless to have postoperative hemorrhage. If there is subcapsular venous engorgement, either tie off the spurting vessels or ligate a whole section of the gland by dipping deep into the glandular structure, stopping the free flowing veins by pressure of the entire ligated section.

It is not necessary to resort to castration if this method is used for relief of prostatic hypertrophy. Thus, sexual function and masculine characteristics are retained.

Report of Cases

Case 1.—Scotch Terrier, 3 years old with chronic, dry eczema; also suffering from difficulty in urination and defecation, the latter seeming to be worse. Dog was lethargic. Stiff gait, particularly in hind quarters. Enlargement in flank region in front of brim of pelvis. With finger in rectum and other hand in flank, the prostate seemed to be 4 to 5 cm. across. Gland was bulging well forward. Enema was given and the gland massaged. Three weeks later, the dog was brought in again, seemingly with abdominal pain, difficulty in urinating, and walking stiff in hind quarters. Operation was performed. No urinalysis was made at that time. Eighteen days later the gland was greatly reduced. Five months later the dog was again brought in with a moist eczema which was said to be much worse in the last few days, was drinking water excessively, and urinating frequently. At that time, a urinalysis showed a specific gravity of 1.008 and positive for albumen and bile. The low specific gravity indicated a chronic interstitial nephritis. The dog was destroyed soon afterward. This animal was normal for five months which, for a normal span, in comparison with man would be two years of added life. If the specific gravity had been checked at the time of the second visit, operation would not have been recommended.

Case 2.—Boston Terrier, 11 years old, lame in left hind leg for two previous days, painful to touch in rear quarters, no discomfort from toes to pelvis, swelling over perineal region, dull, no history of bowel evacuation or urination, temperature 103.8 F. Enema given. Pain over prostate region. Prostate gland massaged for the two following days. Third day, temperature 104.4 F.; adhesions were detected and gland seemed to have small abscess. Urinalysis was positive only for albumen. Smears showed many leucocytes present. The fourth day, he was operated upon with an uneventful recovery. Three weeks later, he was brought in and the gland was down to apparently normal size. Later observation showed that the gland should not have been massaged, and that the abscess did not break through the capsule. The dog is still living.

Case 3.—Pointer, 7 years old; had difficulty in defecating for the previous three or four years. For the past year he had been given 1 oz. of mineral oil twice a week to lessen constipation. Now constipated, and had been straining excessively for last week. Upon rectal examination, the anal sphincter was relaxed and the posterior portion of the rectum was ballooned and the region over the prostate noticeably constricted. The prostate was 4 to 5 cm. across, with greatest enlargement in the right lobe. He was operated upon immediately and given supportive saline dextrose feeding, intravenously, the next day. This was also done to prevent postoperative shock. His convalescence was uneventful. Four weeks later the gland was greatly reduced to nearly normal size. At this time, the owner told me he had been hunting him for the past three or four days with no further symptoms of his old condition.

Case 4.—Mongrel Cardigan Welch Corgi, 7 years old. Owner raised him from a puppy. The dog had had distemper and had been "wormed" twice for tapeworm. Always had soft stool. Bulging noted on left side of anus. Anus was relaxed and large diverticulum on left wall of rectum. Prostate was enlarged 3 to 4 cm., tender on palpation and readily reverted back into pelvic cavity with little resistance.

Suprapubic intraperineal prostatectomy was performed first. Five weeks later, the prostate was reduced to normal and the rectocele still present. Dog was brought to hospital for preparation of perineal operation which was done five days later. Six months have passed and no prolapse has yet occurred, and the stools are normal without the continued administration of mineral oil.

In going over the literature on the human type, I noted that the benign hypertrophy occurs in the submucosal and mucosal layers,[7] which are adjacent to the urethra and does not occur in the true gland proper. With this true in man, hypertrophy occurs that is not diagnostic by

[7]Motz and Perearman: Annales des Maladies des Organes Génito-Urinaires, *23*, (1905): 1521-1548.

rectal examination and can only be ascertained by cystoscopic examination or sectioning by the pathologist.

It has been my experience that there may be no dysuria; only difficulty in defecation as cited in case 3. With this background I sought, by the aid of pathologists, to see if the hypertrophy occurs in the true glandular portion as a possible source of irritation for the difficulty in defecation alone.

By communicating with Dr. Schlotthauer, I learned that the hypertrophy may occur throughout the gland.

In conclusion, our old theory that hypertrophy always causes pressure on the urethra is a fallacy. Hypertrophy may occur without apparent pressure on the urethra. This increase in size and tension of the gland, resulting in pain and pressure on the rectum, is accompanied by partial stricture of the lumen in the region over the prostate gland.

Work with uropathology offers a large field for further investigation. With the use of such tests as the phthalein, blood urea, nonprotein nitrogen, intravenous and retrograde pyelogram, we can further differentiate and isolate the foci of infection.

CONCLUSION

1) Malignancy of the prostate is rare, in my experience. Therefore, surgical aid for benign hypertrophy is an aid for the dog's longevity.

2) Sulfathiazole, locally, as a topical application has a beneficial germicidal action.

3) Relief in urination and defecation is immediate after operation, with a quick return to normal function, if the resultant lesions of the urinary system have not been too great.

4) Perineal hernias are a sequel to hypertrophy of the prostate gland.

5) The condition of the prostate should be rectified, surgically, before the perineal hernia, thus increasing the latter's chance of surgical success.

6) Hypertrophy of the prostate gland reduces greatly in size within two months after operation.

Irritant Effect of Catgut

Surgeons have stressed the undesirable effect of catgut as compared with nonabsorbable suture materials. Irritant effects have been traced to catgut. It is believed (Halstead) to serve as a culture medium for saprophytes which are carried into it from the deep epithelium and follicles of the skin and the possibility of an allergy (Kraissl) to catgut has been demonstrated. The irritation is manifested by induration, redness, serum formation, and lowered tissue resistance, with increased susceptibility to organisms introduced at the operation or present in the blood stream. Another theory (Dunham and Jenkins) is that the hydrocarbon in tubing fluid is the source. This is believed to be the factor in both boilable and nonboilable gut. The chemical laboratory of the American Medical Association has demonstrated that up to 14 per cent of tubing fluid contained insoluble aromatic hydrocarbons.—[*Editorial, J.A.M.A., 123, (Nov. 7, 1943): 637.*]

Anterior Pituitary Extract in Bovine Nymphomania

Casida, McShan, and Meyer, University of Wisconsin, report the following results (*J. Anim. Sci.*, Nov. 1943) obtained in the treatment of nymphomania of cows with the unfractionated sheep extract of the anterior pituitary gland:

Of 96 cows affected with cystic ovaries, 81 were nymphomanic. The maniacal symptoms disappeared in 72 of the latter after receiving a single injection; of these, 14 relapsed on account of having tubal and uterine lesion complications. In 74 of the 96 cases, corpora lutea were found to have formed within thirty-one days after treatment. Normal estrus came to 69 of the cows from a single injection. Out of 52 cases of uncomplicated cystic ovaries, 35 became pregnant.

Charge for Leasing Bulls for Artificial Breeding

The charges to be assessed on the leasing of bulls for artificial insemination remains controversial among breeding associations, inasmuch as the performance of proved bulls and the performance shown in pedigrees of unproved ones cannot be dismissed in establishing a fair rate of charges, and these are not easy to calculate mathematically. Bartlett and Perry (*Abst. J. Anim. Sci.*, Nov. 1943) suggest the rate

adopted by a breeding association for accepted semen samples:

The base charges for proved bulls having 5 or more tested daughters is $3.00 per semen sample and, in addition, 10 points for each percentile that his daughter's average yearly fat record is above the breed average for the given age and class. If the bull has less than 5 milking daughters, the rate of compensation is 8, 6, 4, or 2 cents per point above the breed average in a descending scale from 5 to 1 tested daughters. For unproved bulls, the compensation allows a base rate of 50 cents per accepted sample for a yearling bull, and a 25-cent annual increase of $1.50 at 5 years of age.

Urethral Obstruction in a Foal: Urethrotomy

The patient was a purebred Belgian male foal, 3 weeks old, born too weak to nurse unaided. In spite of having treated the dam with potassium iodide, it was born goitrous. The dam had a history of having given birth to 4 weak foals previously, despite attempts to prevent colthood infections. She had been vaccinated against *Salmonella abortivoequina* infection. The first symptoms of urethral obstruction were continuous and persistent attempts to urinate. The urethra was explored with a sound made from a speedometer-chain housing which I find to be a handy instrument for many purposes. The sound was blocked below the ischial arch. No force was used to pass it farther. Twelve hours later the perineum was enormously swollen and burst open 2 inches below the anus and later at several places around it. At each attempt to urinate, urine was discharged through the openings and some through the meatus. "Keeping Livestock Healthy" mentions straining to urinate as a symptom of *S. abortivoequina* infection of foals.

The foal was treated with a blood transfusion and sulfanilamide. As the disease progressed, it was evident that as long as the tissues around the perineum were bathed with urine, healing would be prevented. So, a urethrotomy, extending from the anus to the ischial arch, was performed, using the speedometer-chain housing in the urethra as a guide. A free outlet for the urine having thus been established, the openings around the anus healed rapidly. Complete recovery followed.—*Chas. Haasjes, D.V.M., Shelby, Mich.*

[The author invites comments on the cause and nature of these urethral obstructions.—Editor.]

Increase of Light Hours Shortens Gestation Period

The variable periods of gestation in certain fur-bearing animals — marten and mink—can be shortened by the use of artificial light. Martens which mate in July and August and give birth to their young in April have been made to complete the period of gestation in December, a decrease of four months. In mink, which have a pre-birth period varying from forty-one to seventy-six days, similar but less striking results were obtained.

The variation is said to rest in delayed fixation of the blastocytes to the uterine wall. In some animals, the fixation is delayed for weeks or days instead of prompt implantation as in other mammals, owing to the short daylight hours of winter.—*From "Science News" in Science, Nov. 26, 1943.*

Lithium Antimony Thiomalate (=Anthiomaline)

The successful use of anthiomaline in the therapeutics of venereal lymphogranuloma, granuloma inguinale, leishmaniasis, filariasis, trypanosomiasis, febrile jaundice, and trachoma of man, suggests its trial in analagous parsitisms of animals.

It has the relatively low toxicity that qualifies parenteral therapy in that category of infections. Each cc. of the drug contains 0.01 Gm. of antimony. The dose for man is 60 mg. increased to 300 mg., or until the dose reaches 2 to 4 Gm. While its use in filariasis has not been extensive, the excellent results obtained in human cases of lymphogranuloma and trypanosomiasis ought to be interesting.

Even though you've just bought 15 billion dollars worth of war bonds, the stock hasn't run out and the Army and Navy are still fighting.

Surgical Rumen Fistula in the Calf

Improved Operative Technique

G. W. ANDERSON, D.V.M., and G. H. WISE, Ph.D.
Clemson, S. C.

RUMEN FISTULATED calves are commonly used in the study of various phases of the physiology of milk digestion. The methods employed in establishing the fistulas in young dairy calves were described by one of us (Anderson) in an earlier publication.[1] However, as additional animals were needed and more operations were performed, certain noteworthy improvements in the surgical technique evolved.

Calves 6 to 8 weeks of age were found to be better operative subjects than younger animals, which were more susceptible to postoperative shock. Moreover, the rumens of these younger subjects were frequently so under developed that satisfactory fistulas could not be established.



—After Anderson, 1943.

Fig. 1—Rumen fistula in a six-month old calf.

Anesthesia was produced by oral administration of chloral hydrate in an aqueous solution at the rate of 14 Gm. (crystals) per 100 lb. of body weight. So that the digestive tract would be empty, all feed and water were withheld for twenty-four hours prior to the operation; as the calves were very hungry, the administration of the anesthetic from a bottle, *via* an attached rubber nipple, was facilitated. The calves readily consumed the solution without wastage. Furthermore, administration in this manner probably insured direct passage to the abomasum, thus accelerating the rate of absorption and shortening the induction period. The initial reactions to the anesthetic were evident within the first five to ten minutes. Anesthesia usually occurred within thirty to forty-five minutes. If only partial anesthesia resulted within the foregoing time, a 10 per cent solution of chloral hydrate was administered intravenously in small doses.

The operative site on the left flank was clipped, shaved and thoroughly washed. Zephiran* was then applied to the cleansed area. The use of 10 per cent tincture of iodine was discontinued since it caused a thickening of the skin which reaction retarded subsequent healing. A transverse elliptical incision 4 inches long and 2 inches wide was then made through the skin, about one-half inch below the transverse processes of the lumbar vertebrae, 1 inch posterior to the last rib, and 1 inch anterior to the tuber coxae attachment of the obliquus abdomnis externus muscle. The skin was dissected from the underlying fascia and muscles. When large arteries and veins were severed, they were clamped to check bleeding but capillary flow was permitted. The wound was swabbed with cotton from time to time when the operative field became obscured.

A long transverse incision was made through all tissues into the abdominal cavity. These tissues were then removed by cutting with scissors, following the skin in-

Technical Publication No. 105. Published with the approval of the South Carolina Agricultural Experiment Station.
From the South Carolina Agricultural Experiment Station.

[1]Wise, G. H., and Anderson, G. W.: Factors Affecting the Passage of Liquids into the Rumen of the Dairy Calf. I. Method of Administering Liquids: Drinking from Open Pail versus Sucking Through a Rubber Nipple. J. Dairy Sci., 22, (1939: 697-705.

*Winthrop Chemical Company.

cision closely, and avoiding the psoas major muscles (directly under the transverse processes of the lumbar vertebrae) and the heavy portion of the obliquus abdomnis internus at its insertion on the tuber coxae. Again, the large arteries and veins were clamped but capillary bleeding was permitted.

The muscular layer of the rumen wall was attached to the skin with interrupted sutures. Including the mucous membrane of the rumen usually resulted in stitch suppuration. Capillary bleeding was permit-



—After Anderson, 1943.

Fig. 2—Close-up view of fistula in figure 1.

ted for either five or ten minutes or until a blood clot was firmly established between the skin incision and the rumen. The wall of the rumen was then excised about one-eighth inch from the sutures.

The exposed ingesta were removed carefully to prevent breaking down the coagulum between the skin and the wall of the rumen. Subsequently, the cavity was packed with cotton. Ureka dusting powder* (urea with potassium-oxy-quinolin sulphate) was applied to the wound surface. The calf was left on the operating table one-half hour after the operation was completed and then carefully moved to a small clean pen. The use of a small pen was considered essential since inactivity of the calf is conducive to early healing.

The advantages of this operation are:

1) Rapid wound healing and early use of the fistula for experimental observations.

*Jensen-Salsbery Laboratories.

The wound was washed with a mild antiseptic followed by an application of the dusting powder daily until a firm union of the skin and rumen had occurred. The stitches were then removed.

2) Fewer stitch and wound abscesses.

3) Very slight postoperative shock and anesthesia complications.

The disadvantages are:

1) Enlargement of the fistula as the calf develops allows more spillage of food and water from the rumen.

2) Loss of body heat.

These disadvantages may be corrected to a limited degree by the use of a close fitting blanket or pad.

Microbicide Against Brucella Abortus

Although penicillin has but weak action against *Burcella abortus*, pyocyanase, streptothricin (prepared from dust flora) and penatin, made from *Penicillum notatum*, appear to be highly bactericidal and bacteriostatic against *Br. abortus*. While penicillin, also made from *P. notatum*, is weak against *Br. abortus* and practically inert against *Escherichia coli*, on the other hand, penatin is potent against these two organisms and even more so against *Staphylococcus aureus*. Penicillin and penatin are by no means identical. The latter strongly inhibits or completely suppresses the growth of *Br. abortus.—Abstract, Exper. Sta. Rec., October, 1943.*

The dashing of sulfonamide drugs into surgical wounds is not a classical substitute for the cleanliness that makes antiseptic treatment unnecessary. There is no substitute for asepsis and there is no drug that does not, to some extent, inhibit the "flowering" of formative tissue.

Assistant County Agent, Monterey County, California (*The Country Gentleman*, Nov. 1943), would increase our wartime meat supply by breeding heifers so that they will calve at 2 years of age. It has been tried out on four ranches and not found wanting. What do you think?

In wartime, geologists mobilize minerals to make munitions. Veterinarians mobilize them (calcium, phosphorus, iron, iodine, to name but a few) to produce more food.

CLINICAL DATA

Beef-bone flour is reported in medical literature to have value as a preventive of dental caries.

Cadmium chloride dissolved in 30 per cen alcohol is a newly announced cure for fun gus infections—athlete's foot, ringworm.

Turkeys affected with acute pullorum disease did not respond to sulfathiazole and sulfaguanidine in a trial conducted by Bankowski, University of California.—*Cornell Vet. July 1943.*

A new vitamin, named *activator X*, for the moment, is said to be a caries-preventing factor in food. It is found in animal fats, particularly in butterfat from cows on lush pasture.—*Journal of the American Dental Association.*

The importance of trace minerals in feeding livestock lies, to a considerable extent, in the action of the enzymes of which they are ingredients, *e.g.*, iodine in thyroxin, zinc in carbonic anhydrase or in the essential part they play in metabolism (cobalt, manganese, iron).

Spectacular cures of bovine piroplasmosis (= Texas fever) from the internal use of alum and copper sulfate are reported in the *Indian Veterinary Journal* (July, 1943). The dose given was ½ oz. of alum and ½ dr. of copper sulfate in a pint of water, once daily for two to three days when the animals (buffaloes) were pronounced cured. The causal organism, *Babesia bigemina*, was isolated.

Soybeans and peanuts, former aliens to American agriculture, have become two of its important crops. Oklahoma farmers alone harvested 265,000 acres of peanuts in 1942, and 530,000 acres in 1943. Texas claims a million acres, planted to peanuts, annually. Bright, leafy peanut hay is equal to alfalfa, according to Oklahoma A. & M. College authorities.

Ruminants are less apt to bloat from exuberant green pastures if fed dry hay in the stable or corral before being turned out.—*From J. Anim. Sci., Nov., 1943.*

Avian pneumoencephalitis is the name given to a nervous disorder of poultry newly discovered by J. R. Beach, University of California.—*Proceedings of the United State Live Stock Sanitary Association.*

As a maker of human needs, Nature is pretty much of a failure. Few of its products are so regular in quality that they do not need the hands of man to make them useful. Many of the most useful materials are not found in Nature at all.

Multivalent vitamin formulas are not as apt to be misdirected therapeutics as large doses of a single vitamin, because of a possible interdependence among vitamins. Large doses of one may derange the action of others. Sydenstricker (1941) showed that large doses of one of the B fractions caused a deficiency of other fractions.

The phenothiazine salt lick, especially as a follow up treatment of single doses, appears to have superseded other methods of coping with the worm-parasite problem in sheep. In addition to the benefits derived by the treated animals, the scattering of worm eggs over pastures is also curtailed.

Calcium Ascorbate

A healing compound is made of calcium gluconate and vitamin C. Neither one alone materially affects healing but the two combined accentuate the healing of bones and, like calcium salts, also have important action against the poisoning of insect and snake bites of the jungles. The healing dynamics of calcium and ascorbic acid were proved by boring out the femurs of rats and treating the experimental injury with a combination of the two.—*From Science Digest.*

Necrobacillosis of the Rumen in Young Lambs

H. MARSH, D.V.M.
Bozeman, Montana

NECROBACILLOSIS of the liver has been recognized for many years as the cause of death of lambs from 1 to 3 weeks old, where early shed lambing has been practiced. The bacteria enter the body of the lamb by way of the umbilical cord soon after birth. That this is the principal avenue of infection is attested by the fact that the practice of disinfecting the navels with tincture of iodine has been found to constitute almost complete protection against this type of loss.

During the lambing seasons of 1942 and 1943, there have come to our attention losses of considerable numbers of lambs, showing necrobacillosis of the liver, on three ranches where an unusually good job of navel disinfection is done, and where such losses have been unknown for a period of ten years or more. Postmortem examination of the lambs showed necrobacillosis of the liver in all cases. Some of the livers showed the multiple necrotic foci which have been recognized as the classical lesions

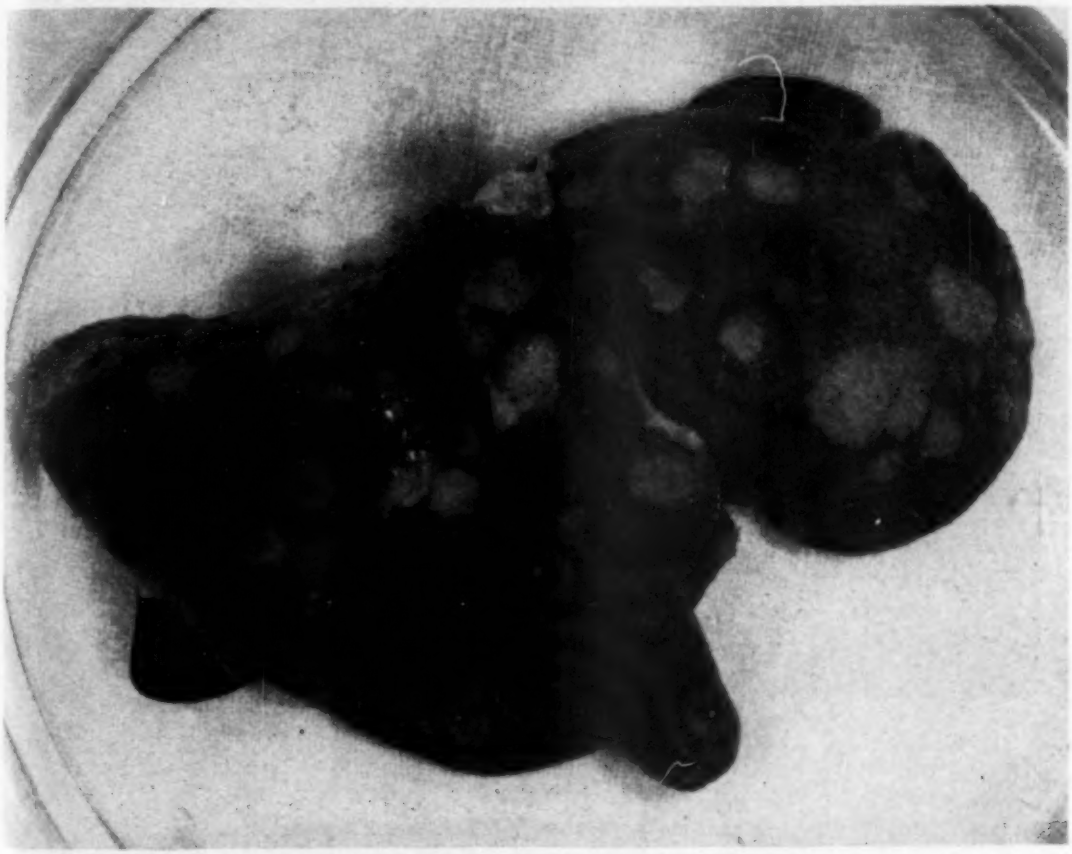


Fig 1—Liver, showing multiple lesions of necrobacillosis.

From the Montana Veterinary Research Laboratory, Montana Experiment Station and Livestock Sanitary Board, coöperating. Paper No. 176, Journal Series, Agricultural Experiment Station, Montana State College.

resulting from umbilical infection. Others showed single, large, deep necrotic abscesses. In some cases, there were adhesions to the diaphragm, with extension of the necrotic processes through the diaphragm, and into the lung.



Fig. 2—Rumen and reticulum laid open to show lesions of necrobacillosis. Arrows indicate the lesions. E, the opening of the esophagus, into the rumen. P, the pillar of the rumen. R, the reticulum.

In 7 of 10 such lambs examined, there were also typical lesions of necrobacillosis on the mucosa of the rumen. The primary lesion in all cases occurred at the junction of the esophagus with the rumen. There were usually several discrete lesions of varying size on the wall of the rumen near the primary lesion. A favorite site was hidden beneath the pillar separating the dorsal and ventral sacs of the rumen. Another location was the rumino-reticular fold. There were no lesions in the reticulum omasum, or abomasum. We failed to find any lesions in the mouth or esophagus, except at the entrance to the rumen. The esophageal groove was not involved.

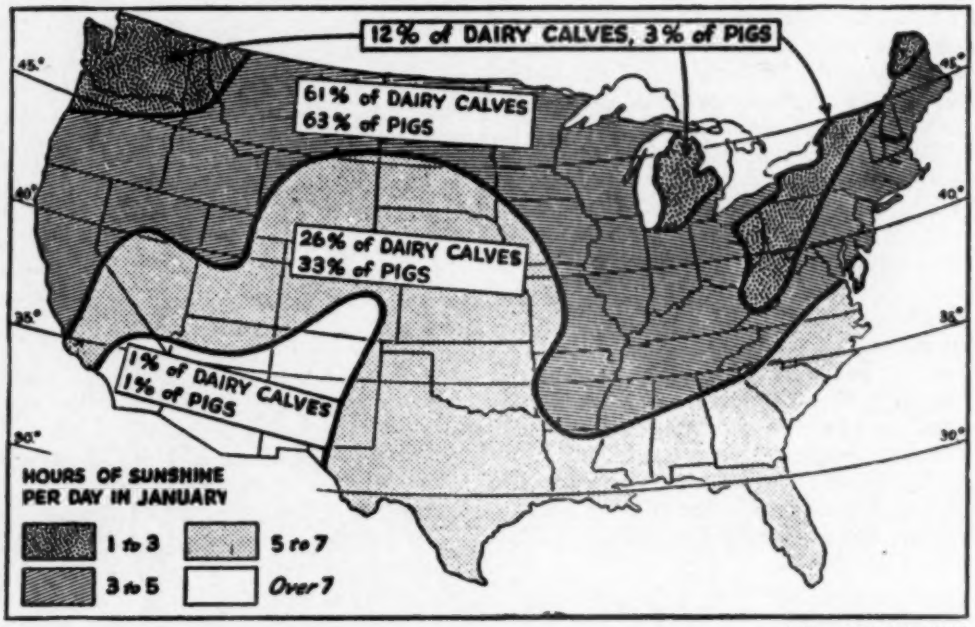
The lesions on the mucosa of the rumen were similar to those described by Newsom and Cross[1] as occurring on the mucosa of the stomachs of feeder lambs as complications of contagious ecthyma. In the older lesions, the necrotic material was raised above the surface of the mucosa, giving the appearance of yellowish white papilloma. When this material was removed, the base of the lesion had the appearance of a mild ulcer, with marked hyperemia. The smaller lesions showed only a small amount of surface necrotic material, but some of the small lesions were deep enough to in-

[1]Newsom, I. E., and Cross, Floyd: Some Complications of Soremouth in Lambs. J.A.V.M.A., 77, (1931): 539-544.

volve the serous coat of the stomach. Smears of scrapings from the base of the lesions showed large numbers of rods and filaments of the characteristic morphology of *Actinomyces necrophorous*.

The conclusion from these observations is that under certain conditions, lamb losses from necrobacillosis may occur as a result of primary infection of the rumen, with secondary invasion of the liver and sometimes the diaphragm and lungs. The favorable conditions are those of poor sanitation, where excessive moisture has created a condition of the sheds and corrals which makes it possible for the lamb to ingest an abnormally large amount of microörganisms, with filth from its mother's udder and wool. At this time of life, the rumen is only slightly developed and is inactive, a condition which is probably favorable to the lodging of small amounts of filth and débris ingested with the milk, or picked up from the ground.

Do You Know Your Sunshine?



—After USDA, 1928

That hours of sunshine per day is an important influence in the practice of veterinary medicine is well known but not always taken into account in the medical treatment of livestock. Owing to other factors favorable to animal production, the two zones of lowest sunshine have the highest animal populations (*see* map). Taking January as the criterion, the ultraviolet of solar origin decreases with latitude northward. That is, the sun's rays lose ultraviolet in traveling the longer distance at a low angle, and therefore the deficiency is felt most in the northern latitudes in midwinter. The deficit is augmented also by the indoor life cold weather necessitates. The map, taken from the USDA Year Book for 1928, is worthy of critical study in veterinary practice since the need of supplementing feed with what sunshine produces (vitamin D) is as variable as its boundary lines. The swing of the lines showing the sunshine hours per day in January is a lesson in veterinary medicine—in animal nutrition.

An Improved Flotation Method for the Recovery of Ova from Feces

DAVID D. EIGENFELD, B.S., and CHARLES J. SCHLESINGER, B.S.
New York, N. Y.

A SIMPLE yet effective method for conveniently conducting the flotation procedure for the concentration of amebic cysts and various ova from feces is here described.

Several concentration methods appear in the literature. Some of these procedures call for the use of solutions of high specific gravity for the purpose of floating the ova to the surface of the liquid. The problem at this point is to recover the ova from the fecal suspension.

Some authors advise looping off the surface film while others recommend that the suspension fill a cylinder which is then covered with a glass slide or plate so that the glass comes in contact with the surface film of the suspension. The ova, it is claimed, adhere to glass which can then be examined under the microscope.

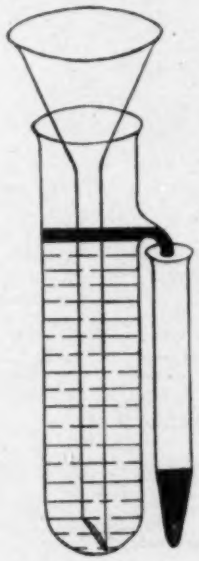
Removing the surface film with a loop has the disadvantage of allowing, at most, a minimum quantity of the concentrate to be examined at one time. The second method has been found unwieldly and difficult to perform in a sanitary manner.

To conveniently collect the surface film formed by using the concentrated solutions (brine, calcium chloride, zinc acetate, etc.), a side-arm tube was devised as shown in the accompanying diagram.

Enough fecal suspension is placed in the tube to almost reach the level of the side arm. A funnel is introduced whose stem reaches the bottom of the side-arm tube. After sufficient time has elapsed for flotation (depending on the method used) enough of the high gravity solution is slowly poured into the funnel to allow 2 to 4 cc. of the surface layer to spill over into the side-arm where it is caught in a centrifuge tube. (*See* diagram.) Before pouring the solution into the funnel, it may be advisable to gently rotate the side-arm tube so that any ova adhering to the side of the tube would be dislodged. Ten cc. of distilled water are added to the centrifuge tube, care being taken that the liquid content is thoroughly mixed. The tube is then centrifuged for a few minutes and the sediment examined for ova.

The method outlined is simple, expedient, and effective. Since the entire surface film is recovered, the possibilities of the test would have been exploited to the utmost.

The side-arm tube is easily constructed



by flaming a test tube (6″x1″) about two inches from the open end until the glass is soft. A long pair of forceps, previously heated at the tip, is introduced into the test tube which is still held in the flame and the soft portion of glass is pressed outward to form a bulge. The forceps are then removed and used to grasp the bulge and pull it away from the tube in an arc, the pull being directed toward the closed end of the tube. When the tube has cooled, the arm is cut at a convenient level so that the diameter of the side-arm is at least 1/8 inch.

From the Bacteriological Department of the Benliner & Schlesinger Laboratory, Third Ave. and Tenth Street, New York City.

Identification of Corynebacterium Renalis from the Kidney and Bladder of a Horse

On Feb. 3, 1943, a package containing a kidney and the bladder of a horse was received by the Department of Veterinary Science, North Dakota Agricultural College, Fargo, N. Dak., from Dr. G. A. Ottinger, Jamestown, N. Dak.

The bladder was mildly inflamed and thickened. The kidney was enlarged, cystic, and contained caseated and calcified pus. The ureters also were considerably enlarged and contained the same material, according to the doctor's description.

The owner had lost two horses the previous winter which showed identical symptoms and postmortem lesions. The animals gradually lost weight, became weak, and in approximately the last two weeks of life, the urine was heavily tinged with blood and contained a considerable amount of sediment. Death occurred about three months after the first sign of illness.

The bacteriology department was consulted. The material was examined and smears from the bladder mucosa stained, which showed diphtheroid bacteria in rather large numbers. From both the kidney and bladder, pure cultures of this same organism were obtained and studied. Stained preparations were gram-positive. Typical bars and metachromatic granules in characteristically grouped rods were the rule. Primary isolation on serum agar produced small hyaline colonies which enlarged slowly. In veal-infusion, slush agar and in veal broth, the growth was very granular. Of the sugars, dextrose alone was acidified. Indol was not produced. In these and other characteristics, the organism was identical with *Corynebacterium renalis*. (Ernst, 1905-1906.)

C. renalis is recognized as the casual agent in pyelonephritis in cattle, but its definite isolation from horses is reported as a matter of interest.—*J. O. Foss, D.V.M., Fargo, N. Dak.*

Anthrax Increases

The United States Public Health Service, through its Committee on Industrial Anthrax, issues a warning on the increasing incidence of anthrax among handlers of hides, hair, flesh, and intestinal wastes. Most of the increase is due to the handling of wool—wool-sorter's disease. A fact not generally known is that the wool of one infected animal can contaminate the whole bale. Government disinfection stations at points of entry are the best means of keeping the anthrax danger in check, but disinfection at the source is urged.

Neoarsphenamine is given as the treatment of choice for the human infection.

Agar Substitutes

No adequate substitute has been found for agar in bacteriological work although suitable substitutes are now being employed for some of its industrial uses in ice cream, candy, cosmetics, and certain dairy products, according to a report made to the Amerian Public Health Association by Dr. Leslie A. Sandholzer, technologist of the Fish and Wildlife Service of the Department of the Interior. Dr. Sandholzer stated that, prior to Pearl Harbor, the United States had obtained 92 per cent of its agar supply from Japan and China; of this supply, 18 per cent was used for culture media purposes.

Domestic production of agar has been stimulated sufficiently, it is believed, to provide adequate supplies for bacteriological needs; the Defense Supplies Corporation has also established a stockpile through purchase and is acting to maintain a safe margin of the product for essential use.

The Etiology of Milk Fever

Many studies have been made of the relation of nutrition to milk fever. None has been fruitful. No blame was ever pinned on the kind, quality, or the amount of feed the milk fever case had consumed either immediately or remotely prior to the hour of attack. And, while certain breeds are more susceptible than others, none is exempt. Moreover, studies of mineral blood values and ratios of blood minerals to one another at freshening time have not disclosed the presence of any influence of that category to which such a sudden nervous collapse can be attributed. Workers at the Ohio Agricultural Experiment Station once reported that the incidence of milk fever could be lowered by feeding yeast, but after further observations re-

ported that the conclusion was not well grounded *(J. Dairy Sci. August, 1943)*. There would be some logic in calling milk fever an acute clinical hypocalcemia, the way the sleeping cow is aroused by a dose of calcium, if inflating the udder, which has the same effect, could somehow be reconciled with the calcium therapy. Certainly, neither nutrition nor blood chemistry has cleared up the etiology of milk fever. We, of the arm-chair strategists awaiting the postulates, think of the etiology of milk fever as unknown. The preparturient hypoglycemia and ketonemia leading to clinical acetonemia several days later still baffles.

Minerals for Calves

Salt, iodine, calcium, and phosphorus are the minerals that must be watched in calf feeding. Salt and iodine deficiencies are most readily prevented by including 1 per cent iodized salt in the grain mixture, and offering iodized salt free-choice regularly or periodically. Calcium and phospohrus deficiencies can be prevented by including 1 per cent of calcium and phosphorus supplements in the grain mixture. So long as whole milk or skim milk is fed at the rate of 12 pounds per day, no calcium and phosphorus supplements are needed. Even after milk feeding is discontinued, no phosphorus and calcium supplements are needed so long as legume or legume-mixed hay is used and wheat mill feeds or high protein supplements are included in the grain mixture. When straight nonlegume roughage is fed and cereal grains only constitute the grain mixture, a calcium-phosphorus supplement is indicated.—*Dr. W. E. Krauss; Nutritional Deficiencies of Calves, Proceedings of the Third Nutrition Conference of the Central Soya Company. July, 1943.*

Stilbestrol for Poultry

Tasty broilers and tender old roosters are promised by Biochemist Lorenz of the University of California by the simple process of slipping a pellet of stilbestrol under the skin (of the neck), where absorption is slower than when this synthetic estrogen is given internally. The drug is used about four weeks before marketing. Says *Poultry Tribune:* "Poultry scientists doubt the practical importance of this research."

Sulfonamides and Dehydration

Serious results from overdosing with sulfathiazine, given at the recommended rate to battle casualties is pointed out in *The Bulletin, U. S. Army Medical Department,* where large amounts of fluids are lost through the skin (sweating) on account of environmental conditions. Renal complications and colic ensue. While adequate intake of sulfonamides is important, such complications are all the more significant, since fatalities occur even after withdrawal of the drug and the administration of fluids.

The lesson we draw from this report is that the loss of body fluids in animal patients, resulting from blood loss, diarrhea, and sweating, is not to be overlooked in the sulfonamide therapy which we use with reckless abandon. It may account for some of the fatalities on record.

Brucellosis Eradication

Those who look askance at the eradication of bovine and porcine brucellosis, are but repeating the behavior and skepticism anyone could have seen when tick eradication was commenced in 1906, and the echoes one heard when Kiernan and Wight set out to take in bovine tuberculosis in 1917. Brucellosis must go, and if the Bureau is not pulled apart by the opponents of big livestock sanitary enterprises, it will go. Compromising with disease has not been on the program of the veterinary service, and, let us hope that appeasement will not replace unconditional surrender in the case of this problem. We're hearing some familiar noise sounding off from the same old place.

Formula 612

Formula 612 is the name of a new insecticide, a cheap, stable, colorless liquid that will not harm anything save insects. It is a product of the New Jersey Agricultural Experiment Station, developed by Dr. Philip Garnett at the request of the Surgeon General of the Army and Navy. Object: a drive on malaria-carrying mosquitoes.

Some Wildlife Cases of Particular Interest

In the course of performing autopsies on various wild birds and mammals submitted for examination at the Bear River Wildlife Disease Research Station, the following cases, picked from many others, appear to be worthy of a special report.

NEW PARASITES IN BIGHORN

On Feb. 7, 1942, a Rocky Mountain Bighorn ewe, found dying on the East Fork of the Salmon River, Idaho, was submitted for examination by Mr. Wesley Shaw of the Idaho Fish and Game Department. Autopsy revealed the presence of verminous pneumonia caused by a severe infection of *Protostrongylus stilesi*. Verminous pneumonia is common in Bighorn sheep, but the feature of special interest is the presence of certain parasites in this animal which have not been recorded in Bighorns before.

The new species are: *Ostertagia grilhneri* and *Ostertagia occidentalis*. Identification was made by the Zoölogical Division of the Bureau of Animal Industry. Besides these new parasites, *Marshallagia marshalli* and Trichuris sp. were also present. In the frontal sinus, a single *Oestrus ovis* was found. This parasite has been reported in Bighorn sheep only once previously, by Dr. J. W. Scott, *(J. Mammalogy, 23,* (Aug. 1942)) in a sheep collected at the Gros Ventre River, Wyoming.

SARCOSPORIDIOSIS IN SWALLOWS

A barn swallow and a tree swallow were collected at the Bear River Refuge, Utah, on May 16, 1942, for the purpose of making study skins. Both of these swallows were found to be infested with Sarcosporidia. Contrary to what is commonly the case in ducks, these parasites were found not in the pectoral muscles, but in the muscles of the upper neck and head.

It is strange that although only two swallows were collected, both should be infested. It is, therefore, possible that sarcosporidiosis may be common in swallows. Due to the restriction in location of the sarcocysts to the neck and head region, their existence would not be detected except during the process of complete skinning.

TULAREMIA IN BEAVER

On Aug. 5, 1942, a dead adult beaver was found floating in the river on the Bear River Refuge, Utah. Postmortem examination revealed a severe infection of tularemia, showing typical liver lesions. Another dead beaver was found in the same vicinity a few days later, but was too decomposed for autopsy.

TULAREMIA IN MUSKRATS

During the summer, an unusually large number of muskrats were found dead in the marshes at the Bear River Delta. All were too decomposed for autopsy when found. On September 4, a specimen was finally found which had been dead only a short while. Postmortem examination revealed that the rat was infected with tularemia. Probably this disease, which is common in this locality, is responsible for the majority of the muskrat losses observed. *—E. R. Quortrup, D.V.M.,* and *R. L. Sudheimer, B.S., D.V.M., U. S. Fish and Wildlife Service, Brigham, Utah.*

Phenothiazine Not Harmless in Horses

Whatever may be the safety of phenothiazine as a vermicide in ruminants, considerable care should be taken to avoid its use in poorly nourished horses. Tests carried out at the Regional Research Laboratory at Auburn, Ala. have demostrated that horses on a ration of white corn and Johnson grass hay are poor risks when given the drug in medicinal doses. Fatalities may occur. A pre-treatment ration of oats and good, leafy alfalfa was found to be preventive.

Staphylococcus Intoxication from Goat Milk

The report is of 3 fatal cases (human) of food poisoning caused by drinking raw milk of a goat suffering from suppurative mastitis due to *Staphylococcus aureus*. Two of the patients (children of 3 and 4 years of age), died within twenty-four hours after drinking ¼ pt. of the goat's milk. The goat was desperately ill, dying twenty-four hours after the milking related to this accident. Persons who drank cooked milk from the goat did not develop symptoms. Material taken from the udder *post mortem* sickened kittens. The incident suggests the possibility that if an enterotoxin was present it was thermolabile.—*American Journal of Public Health, November, 1943.*

Perosis in Swans and Chickens Fed Manganese-Fortified Mashes

It is recognized generally that perosis, or "slipped tendon," in chickens is caused by a manganese deficiency and that the feeding of manganese-fortified mashes (usually 4 oz. of manganese sulfate, or its equivalent, per ton of feed) is preventive.

During the past year, young swans have been observed to develop perosis although they were being fed a manganese-fortified mash. The owner was advised that the manganese requirement of swans might be greater than that of chickens. As a result, he increased the amount of manganese sulfate in the mash several times until finally it contained four times more than the original strength. Cases of perosis continued to develop.

It is a common practice in feeding young swans to prepare a gruel by adding water to the mash. The water being used in this instance had a pH of 7.8. As this is definitely alkaline, the owner was advised to use water from another source which was slightly acid (pH 6.6). When this water was used no new cases of perosis occurred, and well-developed cases of the deficiency improved almost immediately. With slightly acid water the original mash adequately met the manganese requirements of the young swans.

According to Black,[1] calcium and/or magnesium alkalinity, and oxygen in the water, react with the soluble manganese salt to form the insoluble hydrated manganese oxide. Thus, when alkaline water was added to the mash, in the preparation of the gruel, the soluble manganese sulfate was changed to the insoluble manganese oxide. The insoluble manganese salt apparently was almost totally unavailable to the birds. The occurrence of perosis in this case indicates that the efficiency of the manganese-fortified feed was seriously reduced when it was mixed with alkaline water to form a gruel.

The occurrence of perosis in chickens fed manganese-fortified mashes has been repeatedly observed in this state. In a few instances, the incidence has ranged as high as 5 per cent. Inquiry has indicated that the occurrence of perosis in chickens fed manganese-fortified mashes is observed rather frequently in the southeastern states, chiefly in the low lands. In the hilly regions, perosis under such circumstances occurs rarely.

As alkaline water is encountered occasionally in this state, an experiment was conducted to determine the effect of dilute calcium hydroxide water on growing chicks. One hundred baby chicks were divided into 2 equal groups. One group was fed water with a pH of 8.0, which was prepared by the addition of calcium oxide to tap water. According to Black, the alkalinity of waters in this state rarely exceeds a pH value of 8.0. The second group received water with a pH of 6.0, which was prepared by the addition of hydrochloric acid. A commercial manganese-fortified mash was fed to both groups. One case of perosis developed in each group. The experiment was terminated when the birds had attained the age of 8 weeks. The experiment was repeated; one bird in each group developed perosis. Under the conditions of these experiments, alkaline water did not reduce the efficiency of the manganese-fortified mash in the prevention of the development of perosis in young chicks. In the case of swans, the alkaline water had an opportunity to react with the soluble manganese salt in the feed before being consumed by the birds. In the case of chickens, the mash and water was consumed separately. Under these latter conditions, much of the water has an opportunity to be neutralized by acidity in the crop.

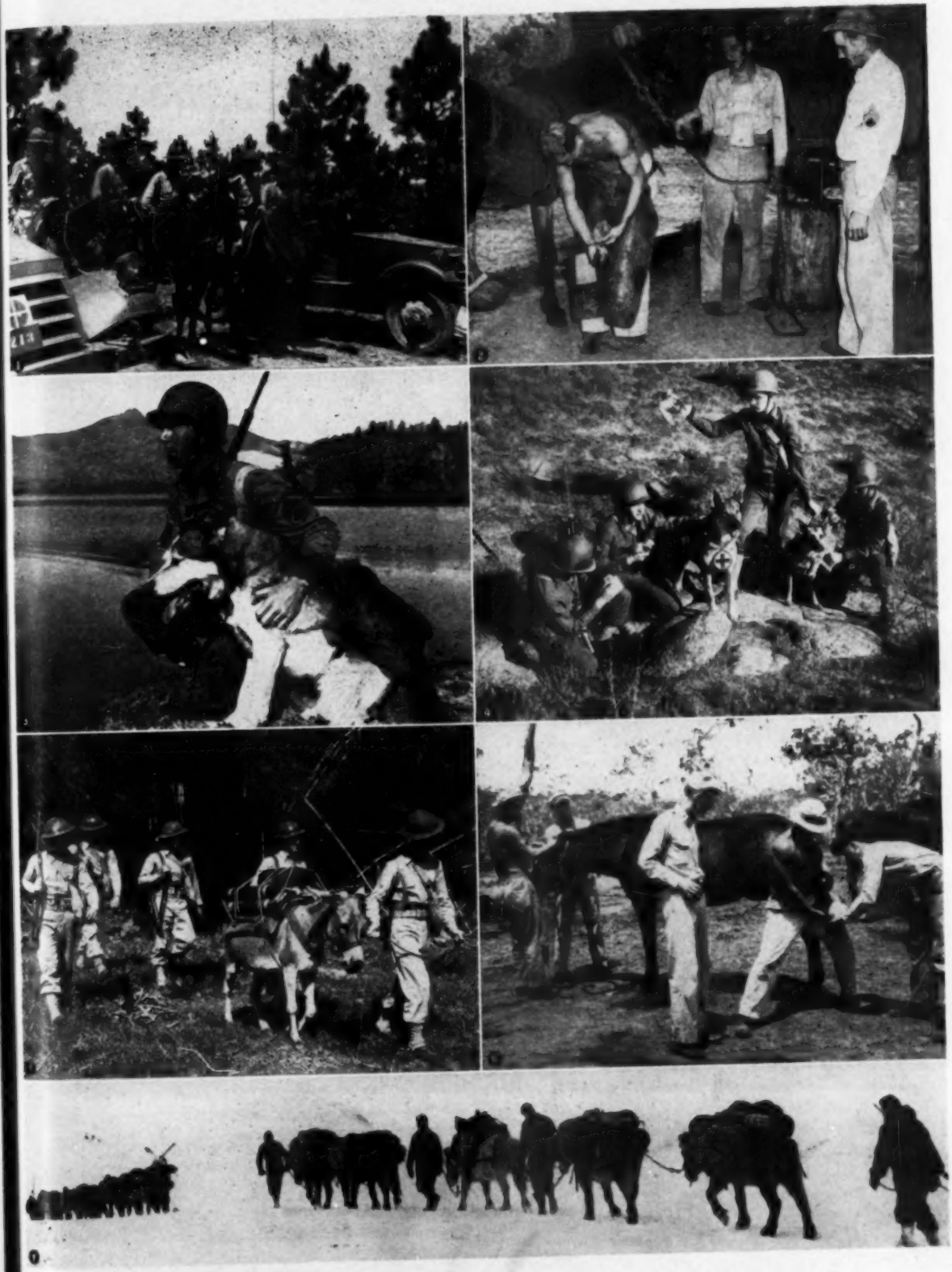
The chickens in the two above experi-

[1]Black, A. P.: Personal communication.

CAPTIONS FOR ILLUSTRATIONS ON OPPOSITE PAGE

Fig. 1—On some Army fronts, both horse power and machine power are utilized.
Fig. 2—Blacksmith shop of veterinary evacuating hospital somewhere in New Guinea.
Fig. 3—A soldier and a war dog stop for a rest.
Fig. 4—A simulated battle front showing one of the many uses of Army dogs. They transport carrier pigeons in pouches attached to their sides.
Fig. 5—Donkey carrying infantry equipment somewhere in the Caribbean.
Fig. 6—Army mule receiving treatment for thrush, supervised by Lt. Truman B. Fleener of the Veterinary Corps.
Fig. 7.—Ponies leased to the U.S.A.F. by the Norwegians for use in Iceland.

War Animals, Army of the United States



ments were weighed at two-week intervals. The male birds, receiving alkaline water, weighed at the end of the eight-week period an average 25 Gm. less per bird than those receiving acid water. Female birds receiving alkaline water weighed an average of 52 Gm. per bird less than those receiving acid water. There were practically no differences in the average consumption of mash in the 2 groups. What effect the continued use of alkaline water might have on the development and maturity of chickens is unknown. However, these data indicate that alkaline water probably should be avoided if possible.

The occurrence of perosis in chickens fed manganese-fortified mashes is all too common in this state. It is believed that certain other factors concerning the drinking water or environment operate to render the manganese in manganese-fortified mashes unavailable, thus increasing the incidence of perosis.—*M. W. Emmel, D.V.M., University of Florida*, Gainsville.

Etiology of Blacktongue

Nutritionists have emphasized that factors other than niacin deficiency are partly responsible for canine blacktongue, and that the coenzyme content of the liver and muscle tissues is lower in dogs suffering from blacktongue than in normal dogs. Moreover, blacktongue does not necessarily occur from fatal niacin deficiency. Experiments with purified diets to which thiamin, riboflavin, pyridoxine, hydrochloride, and/or calcium pantothenate, together with less than normal amounts of niacin, were added produced manifestations of blacktongue different from those shown by animals fed the restricted diet. The observations suggest that other micronutrients, yet unknown, enter into the etiology of the disease.—*From Nutrition Reviews, Oct. 1943.*

Tuberculosis Disappearing?

"Is tuberculosis disappearing?" is the title of an editorial in the *Journal of the American Medical Association.* The incidence of human tuberculosis was halved twice since the turn of the century. The decrease was from 200/100,000 to 45/100,000 during the last forty years. Cause: a combination of factors among which the eradication of bovine tuberculosis and the pasteurization of milk are not mentioned. The latest thing we have as of animals is the Los Angeles County report showing an incidence of bovine tuberculosis of 0.045 per cent. When this civilization matches that for the human animal, that will be something. Of course we know you can't dispose the human animal at the abattoir nor make him behave like manhandled cows.

Biotin (=Vitamin H)

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The former belief that wooly faced sheep had heavier fleeces than open-faced ones is not true.—*USDA.*

American Milk Hygiene

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Legislation in the United States on the subject of milk supply, although it varies somewhat in the different states, is, on the whole, more drastic and more effectively administered than in Great Britain. Perhaps, in one way at least, their problem is a simpler one since the amount of tuberculosis in cattle has always been much less in the States than in this country. During recent years a campaign for the eradication of tuberculous cows throughout the whole country has been undertaken. . . . So successful has it been that a very large percentage of all milch cows in the United States of America are tuberculin tested, and there are now relatively few reactors. To make assurance doubly sure, milk from tuberculin-tested cows is also pasteurized and bottled so that the risk of contamination on the way from the cow to the consumer is avoided. Partly because of the safety of the supplies, but, no doubt, partly because of its value as a food, milk is highly popular in the United States, and the consumption per head of the population is far higher than it is in this country, averaging about a pint per person per day. It would cause no surprise whatever in an American restaurant or hotel if one asked for a glass of milk at dinner instead of coffee—quite a number of other people will be doing the same.

Writing editorially on "Milk Policy" of the Minister of Agriculture, the *Veterinary Journal* (London) says: "The veterinary inspection of herds will be recognized so that every herd will be inspected at least once a year. This may seem a small contribution to the ensuring of healthy cattle but it will provide the basis of inspection of dairy herds throughout the country and brings the state veterinary officers into regular contact with farmers who must need their advice. . . ." Obviously, attention to dairy hygiene is being aroused also in Britain.

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If the cat is not exactly an official battle-front warrior like the horse, the mule, the camel and the dog, Tabby is by no means out of the war picture. He does yeoman service watching rat and mouse holes in the warehouses. Without him, farms and towns would be over-run with this rodent vermin. After the evacuation of Strasbourg (1871) rats moved in and took charge



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Locomotory Incoordination in Swine

Pantothenic acid and pyridoxine (= vitamin B_6) as factors of the locomotory incoördination so common in growing hogs is the subject of a paper presented at the thirty-sixth annual meeting of the American Society of Animal Production at Chicago, Nov. 30-Dec. 1, 1943, by Ellis, Madsen and Miller, USDA. The experiments described show that these factors are related to the nerve degeneration manifested by locomotory infirmity commonly seen in the hoglot. In effect, their investigation showed that calcium pantothenate, added to the diet, reduces the incidence of that disorder but that full prevention requires the addition of pyridoxine, or vitamin B_6. These significant findings were confirmed by the use of purified diets containing the usual vitamins hogs require. There was also evidence that the amine choline was required for the protection of hogs fed on the purified diet. The authors' conclusion was that low levels of pantothenic acid intake in the normal feed of hogs is responsible for locomotory incoördination.

The Relation of Vitamin A and Urinary Stones

The debate over the relation of vitamin A deficiency and the formation of urinary calculi in the human being continues, with yeas and nays on both sides; whereas in animal medicine, that relation appears to have been proved, especially in sheep and in experimental rats. Jewett, Sloan, and Strong (*J.A.M.A.*, Feb. 20, 1943) were unable to establish the connection on the ground of disagreements among investigators and the failure of vitamin A treatment to change the pathologic picture of urolithiasis in 98 human patients studied. May we, therefore, step in to suggest that calculi are the results, not the disease itself. Our examinations of stones removed from the urinary reservoirs of large animals seem to prove that any solid substance arrested in the bladder of an animal will "gather moss" in apparently normal subjects. The finding of a vitamin A sufficiency at the time a stone announces its presence by obstructing the urinary tract or damaging its walls is no proof that a deficiency of that vitamin was not the original cause of the formation. Whether the nucleus is a clump of exfoliated epithelial cells or a foreign body, concentric layers of mineral salts will soon cause stone formation. In so far as large urinary stones are concerned, microscopic evidence of a foreign body was always found. We once removed from the bladder of a mare a calculus the size of a goose egg built around a wooden stick which proved to be a piece of twig from an apple tree. The mare, affected with chronic caudal pruritus, had the habit of rubbing her tail against the trees in the orchard. In another mare, the stone was built around the broken end of a catheter. In other cases, the nature of the nucleus could not be determined by the crude examinations made.

As these phenonema are facts, not theory, it seems reasonable to suggest that the examination of human cases of urolithiasis at the time a stone is clinically manifested is perhaps a bit late, so far as incriminating or excluding vitamin A deficiency is concerned.

Winter Worm Treatment of Ewes

Worms carried by ewes in winter are sources of roundworm infection of the coming lamb crop. It is, therefore, recommended that all ewes be treated with phenothiazine, starting in the late fall after freezing weather begins. Besides treating the ewes with a dose in liquid form, they should be given their salt containing 10 per cent of phenothiazine starting two weeks before lambing and continuing through June. Since no single treatment will remove all of the worms, the medicated salt takes care of the worms remaining.—*From Circular 5, Montana Wartime Service.*

Influenza Antiserum (Human)

Comes information from Russia that an influenza antiserum made of horses "hypered" against human influenza virus is being used extensively among the soldiers of the Soviet Army. The antiserum is inhaled deeply into the respiratory tract for fifteen minutes in the form of a spray. The immunity conferred is of short duration but is useful in controlling epidemics, the dispatches indicate.—*Vide, Science Digest, October, 1943.*

Recovery in Rabies

In all medical history, only one authentic human case of recovery from rabies is of record. Reference is from memory of a report published some years ago in a French medical journal. Leith, one-time veterinarian of the Chicago Police Department, speaks of a horse contracting rabies after having been bitten by a dog, that recovered after showing violent, typical symptoms of rabies for a week; McNutt (*North Am. Vet*, July, 1943) reports the recovery of a rabid hog sick with typical evidence of the disease for several days, followed by a period of subsiding symptoms; and this writer (Merillat) once condemned a horse, apparently rabid, that recovered in about a week after the owner refused to consent to the execution. Although, there could be no laboratory proof to confirm the diagnosis of any of these four cases, each of the reports seems to have the backing of authenticity, so far as is possible from historical and clinical evidence. The human case was bitten by a mad dog that was proved to be rabid by laboratory methods. The two horses were bitten by dogs and went through all of the antics of furious rabies. The McNutt swine case was bitten by a skunk that bit several cattle and hogs which died of rabies proved by brain examinations.

Iodine for Swine

The injurious effects of iodine deficiency on reproduction in swine are well established. Such a deficiency should be suspected when pigs are born dead or when some pigs in a litter are hairless or show immature hoof development. Evidence of goiter is not usually observed in pigs as it is in calves and lambs suffering from iodine deficiency. Iodine-deficient areas are known to exist in the Great Lakes Region and in a number of other areas over the United States. During the winter and spring of 1943, losses of litters indistinguishable from those due to iodine deficiency came to the attention of the Department of Animal Pathology and Hygiene, University of Illinois. Potassium iodide therapy seemed to be beneficial in checking these particular losses; at least, the results were so encouraging that it was deemed advisable to warn Illinois swine producers that loss of litters farrowed by sows fed rations considered adequate in all other respects might be due to iodine deficiency. To those farmers who experienced such losses, it was suggested that small amounts of potassium iodide be added to the concentrates or the water given during the last two months of pregnancy. Two level teaspoonfuls of potassium iodide, dissolved in water, mixed with the grain or put in the drinking water once each week is sufficient for 50 sows. This amount of iodide provides each sow with approximately three grains of the drug each week.—*Drs. Robert Graham, Jesse Sampson, C. C. Morrill and E. H. Peterson: Diseases of Baby Pigs. Proceedings of the Third Nutrition Conference of the Central Soya Company, July, 1943.*

Local Treatment of Dog Bites

Shaughnessy and Zichis (*J.A.M.A.*, Oct. 30, 1943) recommend 20 per cent solution of soft soap as a better treatment of a dog bite than the fuming nitric acid treatment which somehow gained lasting popularity in that rôle preceding resort to the Pasteur treatment. Cauterization with nitric acid is painful and retards healing of the wound. The treatment of experimental rabies in guinea pigs furnished the basis of the conclusion. Neither sulfanilamide nor tincture of iodine alone or in combination prevented rabies. A valuable finding of these experiments is the importance of early treatment. Whether nitric acid or soap was used, the local treatment was but two-thirds as effective when applied from thirty minutes to six hours after the biting.

Statistics prove that animals of the zoos live longer than those allowed their freedom.—*Our Dumb Animals.*

To "A Veterinarian's Wife."—As it is not customary to publish anonymous communications, your letter, as you fear, will have to go into the waste basket unless you will tell us who you are, in confidence; then we shall be pleased to publish your remarks, *incognito.* They touch a vital question in which we are all interested.—Editor.

NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

In this number of the JOURNAL, *members of the Committee on Nutrition present facts which will assist in the diagnosis, correction, or prevention of vitamin-A deficiencies. An effort has been made to present this information in a form which will appeal to the practitioner. The Committee has under consideration a series of similar articles covering other important phases of nutrition. They wish to make this section useful, and will appreciate suggestions from the membership relative to subject matter and methods of presentation.*

What the Veterinarian Needs to Know About Vitamin A

I. For Livestock

GEORGE H. HART, V.M.D.

Davis, California

Vitamin A is one of three known fat soluble vitamins, the other two being vitamins D and E. Its primary source is plant life where its precursor is developed as the yellow pigment, carotene. All animal life requires vitamin A and thus could not exist without plant life. Even fish in the sea obtain their supply of vitamin A from eating other fish, and the smaller forms from phyto-plankton or sea plant life in which it develops as carotene, as in land plants.

Carotene, as such, is not now known to be of use in the animal's metabolism. All animals however have the ability, partially or completely, to convert carotene into vitamin A in the liver and to store it there as well as in fat and other body tissues.

This is important because variations in the amount of storage explain the difference in time required to produce symptoms in different species and different age groups of the same species, when intake goes below minimum daily requirements.

The fetus receives, through the placenta, little more vitamin A than needed and is born with little storage of it. Vitamin A is present in considerable quantity in the colostrum, however, which is another reason why the newborn should suckle. Storage increases with age and is greatest in the mature and older animals.

This is important because it explains why young growing animals are often the first in a group to show symptoms.

Carotene is present in greatest quantity in fresh, green plants, and to a lesser extent, in nonchlorophyl-containing plants showing yellow pigment, such as yellow corn, carrots, sweet potatoes, pumpkins, etc. It is an unstable compound and decomposes by oxidation into inert products. Storage of feeds, rich in this substance when harvested, manufactured, or mixed, usually results in a very large percentage being destroyed.

This is important because it shows the need for securing a history of the animals and the rations they have been fed when the deficiency is suspected.

Vitamin A is needed in the functioning of practically all body cells and therefore the symptoms of its deficiency are varied. All epithelial structures are involved, particularly the eye, gastrointestinal and respiratory systems, urinary and reproductive organs, the central nervous system and nerves. When vitamin A is deficient, the permeability of blood vessels may be increased, resulting in edema.

Vitamin A is essential for the regeneration of the visual purple in the retina.

Head, Division of Animal Husbandry, College of Agriculture, University of California, Davis.

This photosensitive substance is bleached by light and must be regenerated in order to function again. The visual purple reaction is indispensable for vision in dim light. Failure to see in dim light is one of the earliest symptoms of deficiency of vitamin A in the human, cattle, sheep, horses, and swine. This is commonly termed night blindness. It is a pathognomonic symptom and appears a considerable time before fatal termination.

Where this type of deficiency is suspected, the animals should be tested in late twilight. If they are night blind, they will run into each other and into objects placed in their path.

Symptoms and Diagnosis of Vitamin A Deficiency

CATTLE

I. Abortion. Differential Diagnosis:

1) Due to Brucellosis.
Will occur regardless of type of ration fed.
Agglutination test of blood with Brucella antigen positive.

2) Due to vitamin-A deficiency. Clinical history shows:
a) Range cattle during severe drought.
b) Cattle fed ration which has been stored long enough to enable oxidative processes to destroy a large proportion of the carotene.
Test for night blindness.
Submit sample of fetal liver to laboratory for vitamin-A test. If fetal liver is not available, test the blood from the dam for carotene or vitamin A. Low values are not to be interpreted in the absence of fetal liver tests. Normal values will eliminate vitamin-A deficiency as the cause of the abortion.

II. Keratitis

True vitamin-A deficiency can duplicate exactly the eye symptoms seen in infectious keratitis, including corneal ulceration, but a true vitamin-A deficiency, progresses to pneumonia, emaciation, and death.

Differential Diagnosis:

1) Vitamin-A deficiency.
History of having received a vitamin-A deficient ration.
Vitamin-A deficient animals do not respond to treatment for infectious keratitis. Other animals of the group which have received the same ration and are not showing keratitis will be found night blind.

2) Infectious Keratitis.
This condition is definitely caused by an infectious agent, with high incidence, definite course, and recovery. Its persistence, especially in young animals on dry feed, may be shortened by greater intake of vitamin A. The widespread, purported good results of injections of sterile milk or condensed milk into cattle with this condition over much of the far-western range country is hard to explain. In some cases, it may have been due to the vitamin-A content of the injected material or, less likely, the protein content. In the larger number of cases, the treatment was probably of no value, and feed was changed or improvement was made without any treatment. Infectious keratitis runs a rather definite course with high incidence, and practically all animals make complete recovery without any treatment.

III. Anasarca

In the Middlewest, cattle maintained in feedlots for 180-day periods or longer on yellow corn that has been stored for a year or more develop edema of the tissues and on postmortem inspection at the abattoir are condemned for anasarca. This is a vitamin-A deficiency.

IV. Gastrointestinal Disturbances

1) White Scours.
The septicemic form will develop and continue to exist with adequate or high vitamin-A intake. The almost identical syndrome from vitamin-A deficiency will quickly respond to the administration of cod liver oil or some other good source of vitamin A.

2) Diarrhea.
Diarrhea is commonly seen in older cattle suffering from vitamin-A deficiency.

V. Disturbances of Nervous System
In cattle which are vitamin-A de-

ficient, fits or convulsions will occur on slight excitement, due to increased intracranial pressure. In bovine newborn and young calves, before the skull bones have sufficiently calcified, this condition may result in permanent blindness, due to constriction of the optic canals and atrophy of the optic nerves.

VI. Other Symptoms

1) Abscessed livers.

Abscessed livers are frequent in steers and heifers fed for a long time in feedlots on rations low in vitamin A. This is particularly true in sugar-beet-raising states where beet pulp is a major portion of the ration, and vitamin A deficiency may be one etiological factor.

2) Pneumonia and abscesses of the lung. These are late manifestations of the deficiency.

Manifestations of vitamin-A deficiency are slower in developing and symptoms may be quite different in underfed or partially starved animals as compared to well-fed animals.

Thus, under poor range conditions, calves and lambs may be born dead or so weak they cannot stand. If they do get upon their feet, they may not be able to suckle. The dams of such newborn often show no noticeable symptoms. Night blindness, partial or complete, may be found to exist if a test is made in approaching darkness. Failure to suckle was the only symptom noted in a foal born to a night-blind mare under experimental conditions.

HORSES

This species will develop night blindness in 250 to 600 days, after going on vitamin-A deficient diets. Death will occur after an additional period of three months to well over a year. During this time, a variety of symptoms will appear in individual animals, including scaling of the periople of the hoofs, respiratory difficulties with audible breathing, sweating, clouding of the cornea, loss in weight, nervous irritability, and general weakness. In one of our experimental animals, bone changes simulating osteoporosis were produced. Joint lesions found in these cases were definitely proved not to be due to vitamin-A deficiency, leaving their cause still unknown.

SHEEP

Under dry range conditions, abortion from vitamin-A deficiency is common. Other symptoms in adult sheep, aside from night blindness, are not so pronounced Old ewes, just maintaining themselves on vitamin-A deficient rations, without the drain of pregnancy or lactation, will survive for a period of one to two years and then die from gradual, progressive emaciation.

SWINE

In swine, one form of posterior paralysis is caused by vitamin-A deficiency. It cannot be differentiated from other forms except by its response to vitamin-A administration. Also, apparent failure of gilts or sows to become pregnant due to resorption of fetuses *in utero* may occur. With low intake and storage in early gestation, followed by high intake, experimental sows at the Texas agricultural experiment station have given birth to living pigs without eyeballs.

Unit of Measurement and Requirements

The generally accepted standard for measurement of vitamin A is the International Unit. This may be defined as the equivalent of 0.6 microgram of pure beta carotene. This is also the United States Pharmacopeia unit and is equivalent to approximately 0.21 microgram of pure vitamin A. As the individual vitamins become isolated in pure form, actual weights will become a better unit of measurement than units established by definition.

Double standards for requirements must be recognized, one for carotene and one for vitamin A, and both must be considered in evaluating a dietary furnishing both sources. The ratio of the relative efficiencies of vitamin A and carotene widens with increasing levels of intake. At the biological unit level, the ratio by weight is about 3 : 1; at the level to meet minimum requirements, about 6 : 1; and at the minimum level that results in significant storage and successful reproduction, about 10 : 1.

The minimum requirement for domestic animals is defined as the lowest level which will prevent any detectable degree of night blindness. Three times this level of vita-

min A and five times this level of carotene would be minimum for significant storage and reproduction, and, with the aid of reserves established during nonlactating intervals, should provide enough vitamin-A in the milk to support young animals during the nursing period. In general, this is 3,000 I. U. daily, per 100 pounds of body weight, as vitamin A and about 3.5 times this amount in the form of carotene.

Good Sources of Supply

All green feed, bright green hay, grass silage (particularly when preserved by the A.I.V.* method of ensiling), yellow vegetables such as carrots, sweet potatoes and pumpkins; also fish oils and dairy products. Yellow corn, corn silage, and well-cured hays, which have not been stored too long, are fair sources of the vitamin. Yellow corn often needs supplementation of its vitamin-A content when fed for long periods to beef cattle in drylots.

General Information

Lastly, it should be recognized that the so-called rich color of Jersey and Guernsey milk is due to the presence of unchanged carotene ingested with the feed. The white milk of Holstein-Friesians may be just as rich in vitamin A, and will be, if all three breeds have been maintained on the same feed. This is explained by the fact that Holstein-Friesians convert a much higher percentage of carotene absorbed from the feed into colorless vitamin A than do the other two dairy breeds.

The body fat of Jersey and Guernsey cattle is very yellow. The body fat of beef steers is quite yellow if finished on grass, and much nearer to white if finished in feedlots on rations containing small amounts of carotene.

The anomalous condition prevails that a premium is paid for this carotene in milk but is discounted in beef carcasses. The premium for white fat in beef carcasses is largely a meat-trade preference and the housewife knows little about it. A good source of a highly desirable, human dietary essential should not be discounted anywhere if quality of the carcass is otherwise equal. Yellow, dairy-cow carcasses are not as well muscled as beef carcasses and can easily be recognized without depending on color of fat to differentiate them.

The color of egg-yolk is due to carotene and xanthophyll, another pigment of green plants. Where highly colored egg-yolks are not desired, as is the case with high quality eggs in the New York City market, green feed must be fed with care: 5 per cent dehydrated alfalfa meal in the mash, or 5 to 6 pounds of green feed daily per 100 birds, or, if necessary, preformed colorless vitamin A partially supplied in the form of fish oils. Green feed also supplies the necessary vitamin B factors.

In general, feed and management history obtained as a routine procedure will pay the veterinary diagnostician well for the time involved in securing it.

*The "A.I.V. method" of ensiling forage crops is a patented process developed several years ago by a Scandinavian, A. I. Virtannen; it employs a combination of hydrochloric and sulphuric acids as a spray on the ensiled material. An improvement in the method, using phosphoric acid which is much less corrosive and also has greater food and fertilizer values than the A.I.V. mixture, has been developed in the United States.

II. For Poultry

CLIFF D. CARPENTER, D.V.M.

Chicago, Ill.

In poultry, vitamin A is essential to growth, egg production, and reproduction. Vitamin A aids in increasing resistance against infections, and intestinal worms such as the common roundworm.

Slow growth rate, lowered egg production, and poor fertility and hatchability result when vitamin A is not supplied adequately in the diet.

In a mild deficiency, the bird becomes pale, the feathers become rough, and rate of growth is slowed. Egg production is slowed or ceases, depending upon the degree of deficiency.

If the deficiency is serious and extends over a period of time, inappetence occurs, digestive functions fail, and emaciation becomes rapid, followed by death.

At autopsy, an adherent white film may be noted covering the third eyelid, and a mass of white, cheesy material found within the eyelids. Yellowish-white pustules may be found in the mucous membrane lining of the mouth, pharynx, and esophagus. The kidneys may be marked with a network of fine, white lines, and

Collaborator in Poultry Viability, Bureau of Animal Industry, United States Department of Agriculture, Chicago.

the pericardium may disclose a deposit of whitish material.

Diagnosis of vitamin-A deficiency in chickens and turkeys is dependent upon the history, symptoms, and postmortem findings. Birds on green range and those fed fresh-cut green feed (4 to 6 pounds to each 100 adults) or fed adequate mash containing liberal amounts of alfalfa or fish oil with a guaranteed potency will not develop vitamin-A deficiency.

Differential Diagnosis.—Vitamin-A deficiency must be differentiated from infectious diseases, and parasites, which produce anorexia and a resulting loss of color, weight, and egg production.

Frequently, crowding, lack of adequate feed and water space, and other faulty management practices result in birds getting too little to eat, even with an adequate amount of vitamin A in the ration.

III. For Small Animals

M. L. MORRIS, D.V.M.

New Brunswick, N. J.

In dogs and cats, vitamin A is essential for growth, reproduction, and maintenance of normal body functions. Vitamin A aids in increasing resistance against conditions such as secondary infections associated with canine and feline distemper, and diseases of the urinary and intestinal tracts. In a mild deficiency, the eyes may be watery, the animal will show a sensitivity to light, and appear unthrifty. As the deficiency progresses, evidence of growth-failure, inappetence, digestive dysfunctions, emaciation, purulent involvement of the eyes, and occasionally pneumonia, will develop. Unless proper treatment is administered death will result.

Diagnosis of vitamin-A deficiency in dogs and cats can best be made from a study of the symptoms, general clinical appearance, and diet history of the animal. On autopsy, it would be almost impossible to make a positive diagnosis of vitamin-A deficiency without a laboratory examination of the liver tissue for the presence of the vitamin. Vitamin-A deficiency must be differentiated from infectious diseases, intestinal parasites, particularly hookworm and coccidiosis, which may cause inappetence, loss of condition, failure to gain in weight, and general unthriftiness. Puppies or adult dogs receiving an adequate daily intake of fish liver oil should show no symptoms of vitamin-A deficiency. If symptoms are present, they will respond to administration of the vitamin in adequate doses. Commercial foods prepared under present wartime restrictions are very apt to be deficient in this vitamin. This is particularly true of dry foods stored for long periods of time.

Treatment.—Fish liver oils are the best source of vitamin A for dogs and cats. Although these animals may be able to obtain some vitamin A from precursors such as carrots, alfalfa leaf meal, yellow corn meal, etc., there is still some question regarding the adequacy of these sources, since there is considerable variation in the ability of individual animals to effectively convert carotene to vitamin A. For practical purposes, 2 drops of a 1,500 U.S.P. unit fish liver oil per pound of body weight per day should supply the vitamin-A requirement of the ordinary, growing puppy. Adult dogs or cats for ordinary maintenance will require about one-half this amount or 1 drop of such oil per pound of body weight per day.

Executive Secretary, Joint Committee on Foods, American Veterinary Medical Association and the American Animal Hospital Association.

Animal-Feed Substitutes

Already during World War I, Germany studied substitutes for the customary animal feeds and these studies have been continued up to the present time. According to Burch H. Schneider, University of West Virginia (*J.Anim.Sci.*, Nov., 1943), German livestock is now being fed:

1) Sawdust and straw treated with sodium and calcium hydroxide, sodium sulfide, or hydrocloric acid.

2) Wood sugar, wood sugar yeast, wood cellulose, cellulose, and manufacturing residue.

3) Tree leaves, heather, lichen, silt, peat, potatoe byproducts, and other byproducts high in fiber.

4) Urea and amid mixtures, corn meal, ossein, rumen contents of abattoir animals.

Although none of these substitutes is likely to play even a minor part in animal nutrition in this country, the war emergency demonstrates the economy of some of them, the author believes.

EDITORIAL

The Hog-Cholera Problem: a Pattern

Whether knowledge of the animal-disease potential or the exploitation of farm economics is going to direct the application of veterinary science remains unsettled. Will the command fall to pathology or to economics? The hog-cholera situation now is but one of many indications that science is not the major force directing the farmers' animal-disease problems. The question has been openly and widely debated in this country ever since formal veterinary education was established in the 1870's.

The article on "The Hog-Cholera Situation" in this issue is, therefore, recommended for attention by the American people. The author, a past president and pioneer figure in the United States Live Stock Sanitary Association, writes from long experience and close contact with the situation he essays to describe. In effect, the article propounds the primary question that has baffled the key men of the veterinary profession of the United States for the past eighty years, namely:

Shall a veterinary-medical profession be firmly established for the welfare of the American people or shall the application of veterinary science be left to nonmedical direction?

That the two issues contained in the question are diametric opposites from the science point of view is self-evident, but no more so than that the advocates of each issue have been men determined to back their respective programs. The one developed the veterinary profession now serving the nation in various places too numerous to mention, and the other took on, first, the form of chairs in the agricultural colleges and experiment stations; later, county farm advisers, farm bureaus, and production laboratories (through patronage), all engaged part-time in the practice of veterinary medicine, came into the picture. Since the early days, the one always challenged the other and yet from necessity both indulged in what is best described as "unfriendly coöperation." The situation is a condition, not a theory—a condition, unfortunately, none too generally weighed nor comprehended, except in certain states where good understanding and working relationships have been established. But, over the country as a whole, the two groups work at cross points, although not at cross purposes. The objectives are the same, and there are altruists and egoists on both sides, as in all human enterprises.

What to do from now on is one of the veterinary profession's problems. Perhaps the solution lies in further solidification of its organization and insistence upon the basic soundness of the veterinary program as a matter of record. But, instead of each group attempting to solidify its own position, would not a better approach be a meeting of minds for the purpose of evolving a real understanding of respective responsibilities? A step in this direction has already been taken by the Inter-Association Council on Animal Disease and Production which represents five leading organizations vitally concerned with livestock and poultry health. An extension and further implementation of the work of this agency may furnish the approach, if not the final solution, to the problem so important to the country's welfare.

Canadian Army Veterinary Corps

Although fully aware of the impropriety of interfering in the acts of a neighboring country, we have taken the risk on several occasions to protest against the elimination of the Canadian Army Veterinary Corps which should now be operating with Dominion troops in various parts of the world. The excuse which we trust our colleagues north of the international boundary will understand is that the "A" in AVMA takes in more geography than the USA. So, we are prompted again to

concert with our distinguished contemporary, the *Canadian Journal of Comparative Medicine*, which finds that

> It is difficult to think with composure about the scuttled Canadian Army Veterinary Corps and the part it might have played in this war. The muddle headedness which brought about the elimination of this Corps is difficult to understand by those who have a knowledge of the part modern veterinary science plays in the world of today.

The editor goes on to point out how the U. S. Army took its veterinary corps to Newfoundland, to Iceland, and to Alberta to protect the food supply of its troops, including the supervision of the animals around these places from which food for the soldiers is derived. He adds:

> When the history of this war comes to be written it will surely seem remarkable to readers that a country whose pioneer statesmen were among the first to encourage organized veterinary science in America should later produce leaders who seem never to have heard of the subject or if so are unable to value it.

That is, shades of Toronto and Montreal, birthplaces of formal veterinary education in North America.

What can be done about it? Just one thing. Persistence. It took eighty years to establish a veterinary corps in the Army of the United States and no part of the way was without discouragements, "galling to our pride," also. Right is might and should in the end prevail. The agencies ever at work cracking up the scientific operations of veterinary medicine in all countries have been constantly at work right up to this hour. Some of these gain through lack of information, others through personal ambitions. Our obligations are to the people, not to the passing political circles concerned mostly in the next election. We are afflicted with the queer idea that science is too holy to come out of its cocoon and wiggle in its own behalf. We congratulate the *Canadian Journal of Comparative Medicine* for its open protest. If there is anything we can do to help, give us a ring.

Ethics Not for Sale

Looks like standards of professional ethics brought down by the dignitaries of an ancient art are not going to be thrown to the dogs. The every-druggist-an-animal-doctor movement backed by certain drug-trade journals doesn't seem to have won the okay of the ninety-year-old American Pharmaceutical Association. The spectacle of a science sacrificing its soul just doesn't happen, not even when the emergency of war is invoked as the excuse for selling out.

Human and Swine Influenza

The unusually high incidence of human influenza in the United States during recent weeks occasions comment on the coincident occurrence of swine influenza which has also been unusually prevalent during the last two months. Swine losses, however, have not exceeded those of other years when the disease was quite prevalent nor so far as is known, has the human disease had a serious mortality. Public health authorities are, nevertheless, maintaining a watchful attitude.

No one could predict with certainty whether the influenza now occurring in both man and swine will increase in virulence. The extent of the present outbreak of human influenza recalls 1918, but the virulence and mortality are much lower as compared with twenty-five years ago. A tendency toward increased virulence in swine has been observed only in a few herds.

Because of certain similarities of swine and human influenza, their relation will probably receive considerable attention during the present outbreak. It seems timely for veterinarians of the Corn Belt to consider the rather widespread prevalence of swine influenza at this time, not that the situation is alarming but that they may watch and study it well.

Less Footage, Please

A member of the Research Council writes: "As to the matter of space in the two journals *(J.A.V.M.A.* and *A.J.V.R.)* referred to in your letter and also the current number of the JOURNAL, possibly the only solution is to get temporarily or permanently hard-boiled. As a matter of fact, one seldom sees a manuscript or a journal article that could not tell the story just as well, or better, with less footage."

Dr. C. C. Franks, Iowa Department of Agriculture, suggests that it might be better to raise pigs by the thermometer than by the calendar.—*Hoard's Dairyman.*

CURRENT LITERATURE

ABSTRACTS

Salmonellosis in Turkeys

Salmonellosis in turkeys, caused by *Salmonella newington* occurred on nine California ranches from a single egg source. The organism was isolated *post mortem* from the intestine but not in any of the other organs. Oral and rectal doses of the organism transmitted the infection to 8-day poults. The study revealed that salmonellosis in turkeys, due to this organism, may cause severe losses but is easily controlled by preventive measures. —[*W. R. Hinshaw and E. McNeil: Salmonella Newington Infection in Turkeys, Poultry Science, 22, (Nov. 1943): 415-420.*]

Wheat and Corn for Poultry

Corn alone and wheat alone were less effective as poultry feeds than corn and wheat combined. The production ratio was 42.4, 51.1 and 57, respectively, in a test of one year on 3 lots of 37 fowl each. The mash for the corn-alone ration contained 60 per cent corn meal with cracked corn as the scratch feed; that of the wheat-alone ration was 60 per cent wheat feeds as the scratch feed; and the corn-wheat mixture contained 20 per cent corn meal, 20 per cent middlings and 20 per cent wheat bran with a scratch feed of corn and wheat in equal parts. Because fowl like wheat, the wheat-alone ration resulted in higher total feed consumption.—[*G. F. Hauser, Poultry Science, 22, (June 1943): 123-125.*]

Salmonella Fever

For the human disease caused by the various species of Salmonella, the term salmonella fever is proposed by Bornstein[1], regardless of the differences in the relative incidence of this typhoid-like gastrointestinal or septicemic infection. The dominant symptoms are fever and depression lasting from one to two weeks. The disease is milder and less typical than typhoid. Blood and stool cultures are positive at the onset. In adults, intestinal involvement is usually absent and rarely fatal in victims not weakened by other disease or old age. In infants, there is a variety of manifestation. Treatment with anti-Salmonella serum is not conclusive, nor is vaccine (bacterin) therapy of value in acute cases. Although sulfonamides appear promising, final conclusions remain to be drawn.

These infections constitute an important public health problem. Food not properly handled may become the cause. Its control in animals is a veterinary problem of importance, and bacteriologically diagnosed Salmonella infections in man would clarify its importance in public health.—*Editorial, J.A.M.A., 123, (Sept. 18, 1943): 150.*

[1]Bornstein, S.: The State of the Salmonella Problem. J. Immun., 46. (June, 1943) :439.

Bovine Tuberculosis in Equatorial French Africa

Tuberculosis has been known to exist among the bovine animals of this colony, but its degree, frequence, and distribution remain to be determined. The first authentic case detected some twelve years ago in the region of Baguirmi was in an Arabian zebu. Although thousands of animals have been examined since then in that region, only rare cases were found.

On the contrary, bovine tuberculosis is relatively of frequent occurrence in Oubangui-Chari. From 1936 to 1941, the incidence disclosed at the abattoirs ranged by years from 1.6 to 5.01 per cent. In the different regions, the incidence varies with their respective aridity and humidity, and with feeding and management.

The lesions in most part are local; generalized tuberculosis is rare. The lesions are glandular, r a r e l y parenchymatous; calcareous, rarely caseous. The pulmonary lesions are sometimes difficult to differentiate from those of contagious pleuropneumonia and its sequels. The benign nature of the lesions (glandular, calcareous), compared with the acute, evolutive lesions in the animals imported from Europe, leads to the belief (C u r a s s o n) that bovine tuberculosis was brought to Africa centuries ago. In respect to this hypothesis, the author remarks that the artificial life (stabling, utilization) of the European cattle may account for the difference.—[*Dr. R. Malbrant: La tuberculose bovine en A.E.F. Revue des Science Médicales, Pharmaceutiques et Vétérinaires de L'Afrique Francaise Libre. 2, (Jan. 1943): 71-78.*]

BOOKS

Annual Review of Physiology

Volume V of this annual aggrandizement of physiology, the work of an editorial staff charged with selecting subjects and authors, embraces twenty-two articles by that many specialists in physiological research and teaching. Of unusual value to veterinarians are the articles on genetics, energy metabolism, respiration, muscles, digestive system, blood, visceral function of the nervous system, mammalian semen (chemistry of semen, artificial insemination), endocrinology of reproduction (sex hormones, lactation), and biological assays.

In reading these articles, one quickly realizes their purpose: superadded knowledge, in fact. In setting apart the paragraph on artificial insemination, for example, one acquires wholesome respect for the book, for there the author gives the salient facts as we know them from experience. The new fact on digestion and reproduction brought about through the study of dogs is likewise refreshing. This is an outstanding annual for those who keep abreast of the times in physiology—and who shouldn't?—[*Annual Review of Physiology, Volume V. By James Murray Luck, editor and Victor E. Hall, assistant editor, Stanford University, American Physiological Society and Annual Reviews. 613 pages, cloth. 1943.*]

Dominion of Canada's Annual

The annual report of the veterinary director general, Dominion of Canada, is always a reminder of an agricultural country hitting on high despite the ecologic and geographic obstacle stretching all the way from the maritime climate of the East to the sea-tempered weather of the West, englobing big industrial towns, small farm areas and vast pampas, and possessing a self-contained population of over 11 million by the grace of God and a good veterinary service.

What we're driving at is the remarkably low incidence of disease among the Dominion's livestock. No anthrax, no dourine, no glanders, no sheep or horse scabies; but isolated outbreaks of hog cholera and rabies; tuberculosis and brucellosis in the process of being eliminated; and meat inspection and research laboratories well established; these are the many achievements of a national service that certainly is kind to the pocketbooks of the taxpayers, and does much. Consider what the fate of the Dominion would be without it. A glance through the morbidity tables of the annual document strengthens the confidence in what a small group of professional men do for a country, practically unnoticed by its general population.

The 1943 report, announcing the retirement of former Veterinary Director General A. E. Cameron after a long period of service, is edited by Dr. M. Barker, acting veterinary director general, well known figure in the field of livestock sanitary work.—[*Report of the Veterinary Director General for the Year Ending March 31, 1943. Booklet. 40 pages. Edmond Cloutier, Printer to the King's Most Excellent Majesty, Ottawa.*]

Poultry Nutrition

None would gainsay that no book covering the subject as completely was ever published, nor, at the time of its appearance, could any one have predicted the importance of the ground covered, for since its publication, the feeding of the nation's egg-making machinery has mounted to unpredictable heights. The two factors embraced in egg-making are (1) the soundness of the machine and (2) the kind of fuel stoked into its furnace. The rapid growth of chickens from incubator to laying house and the output in eggs and meat in terms of food poundage has no counterpart in food production, but to accomplish its purpose even reasonably well, health and precision in feeding are imperative. One, therefore, appreciates a voluminous book on nutrition to complement the excellent treatises on poultry diseases now available.

Poultry Nutrition is a reference book that brings the knowledge of the subject up to date in 32 chapters with well-chosen titles, among which are ten chapters (263 pages) on vitamins. Nowhere have we found the question of vitamins in poultry raising as well covered. The treatment of carbohydrate, proteins, and fats is orthodox, that of minerals (principal and trace) is brilliant and more complete than usual. The toxic minerals (selenium, fluorine, cobalt, salt) are not slighted. Chapters go to the feeding of turkeys, ducks, and game birds, and the miscellaneous section brings in a great quantity of fascinating material, many tables on values and the making of balance rations. Laymen will appreciate the glossary defining technical terms, and veterinarians certainly want to know the hundred or more official definitions of the poultry feedstuffs as adopted by Association of American Feed Control Officials. Few know that the poultry feed industry possesses that degree of discipline, or even that such official definitions are as exact and more numerous than definitions for the human, meat-food industry as adopted by the USDA. The book closes with lists of (1) poultry and farm magazines, (2) of technical and semitechnical periodicals, (3) of the agricultural experiment stations, and

(4) of the agricultural colleges. Each chapter has a long list of references appended. An exceptionally useful book: edifying, refreshing, educational, necessary in veterinary medicine. [*Handbook of Poultry Nutrition. By W. R. Ewing. 840 pages. 68 illustrations. Cloth. Published by the author, Upper Montclair, N. J. 1941. Price $7.50.*]

Animal Reveille

Taps for military animals was sounding off to every ear when a book named *Animal Reveille* came as a timely reminder that in the march to battle man takes animals along to help out. In that respect, military necessities have not changed because in the prosecution of military operations against stubborn enemy resistance, man fetches in everything "he's got." No science or possession is left behind, least of all domestic animals and these include the food producers as well as the transporters of matériel and men. Armies and navies as late as World War I took droves of animals along to slaughter as needed. If refrigeration and dehydration have removed that encumbrance, the principle remains. Soldiers must eat and animal proteins are still tops in their ration.

A Refreshing Tome

Readers of the JOURNAL may recall how often we've repeated that "the nation going to war without animals is licked from the word go." *Animal Reveille* proves that as of World War II, now in its fifth year. This global war was dubbed a strictly mechanized conflict until the mules of the jungles, the galloping Cossacks and Nazi horsemen, the plodding horse-drawn trains, the dog sledges and the reindeer hitches came looming on to the scene under the umbrella of the airplanes. To the general population, which has come right up to A.D. 1943 without caring much about the man-animal relationship in the progress of mankind, this book should be quite a revelation. Veterinarians are supposed to know all about the rôle of animals in the march of man. That's their *métier*. Fight a war without animals! What a laugh, were it funny! One can ignore the mule, the donkey, the horse, the elephant, the camel, the cat, the dog, and there still remain the mouse, the hamster, the guinea pig, the pigeon, and the canary to account for in the fight for and against human freedom. The book does not slight these.

The author has somehow succeeded in gathering a wealth of known facts about the use of animals in this war that we have treated as military secrets, and he intersperses his story with authenticated anecdotes from far-flung places, telling about the war animals of this hour in such a way as to jar our genus completely out of the erroneous notion that machinery has erased animals from our trestle-board.

Every veterinarian will want this book in his library in order to keep informed on the extent to which domestic animals are being employed in World War II, and how they are being utilized in battle orders, and kept efficient. The book, laid mainly on the battlefield, is fifteen chapters of fact, not of fancy nor exaggeration, gathered from many sources and checked for truth. By all means, buy this book, if not for the hours of fascinating reading it insures, for a record belonging in the annals of veterinary medicine. [*Animal Reveille. By Richard Dempewolff. 272 pages. Profusely illustrated. Cloth. Doubleday, Doran & Company, Garden City, N. Y. 1943. Price $3.00.*]

Poisonous Plants of New South Wales

The receipt of this 500-page book with the compliments of the Director of Veterinary Research, Hindmarsh, B.V.Sc., M.R.C.V.S., D.V.H., arouses two emotions. The one is the desire to cultivate closer acquaintance with the Australian veterinary service and the other is the urge "to know your weeds". World War II has generalized our knowledge of the island continent of the south seas and its people, and created a thirst for further knowledge. The social history of the modern world and the rapid evolution of science, agriculture, and industry within its two newest components is fascinating, academic, and utilitarian, not to say, paramount in the successful application of veterinary science. Veterinary literature from Australia ponders the question, "What would Australia and the United States amount to in this fight for human freedom but for their veterinary services?" Unanswered, the question is a paradox of modern times. Vital as it is to the very existence of a nation, the veterinary scheme gets meager support. There is some consolation in "Forgive them for they know not what they do," but that doesn't put mutton in the pot while anthrax is killing the sheep. The £1,000 a year appropriated for the study of toxic plants was cut off in 1930 for "economic reasons." Did any government ever actually know its economics?

The second thought this book arouses is the importance of veterinarians knowing the flora, as well as the fauna, surrounding them. We once heard Professor Pammel tell an audience of practitioners to go out in the field and get acquainted with the injurious plants of their communities. This book, besides dealing with the generalities involved, meets that need for New South Wales and, of course, for all of the world where the same plants flourish. A

bibliography of 36 pages, a glossary of botanical and medical terms of 10 pages, and a complete index appended to a text giving the botanical description, distribution, general references on toxic actions and poisonous principles of plants injurious to livestock, make up a precious addition to veterinary literature. [*The Poisonous Plants of New South Wales. Contribution of the Poisonous Plants Committee, University of Sidney, and the New South Wales Department of Agriculture. Edited by Evelyn Hurst, B.S.Agr. 498 pages. Illustrated. Cloth. The Snelling Printing Works, Pty., Ltd., Sidney, N.S.W. 1942. Price not given.*]

The War and Fur Farming

The war did not kill fur farming but it dealt it a severe blow. Many beginners quit. Some with a few years try, gave up. A few "old shoestringers" pelted out. The get rich quickers and promoters faded away. The elimination was trying, but who can say it was all to the bad. . . . But its backbone is strong and its spirit unbroken. —*From The Fur Farmer.*

Dogs at War



Canine soldier and his master in the South Pacific theater. The inset is the picture of a Swiss soldier and his dog produced from American Kennel Gazette.

Udall's Fourth Edition

For a book on veterinary medicine, a fourth edition within ten years is proof of its popularity. Quoting from the author's preface: "A period of four or five years may be taken as a generation in the growth of medical knowledge." This is particularly true of veterinary-medical knowledge in respect to worm parasites, internal antisepsis, and nutrition. One only needs to glance through the references appended to each chapter to be assured that the edition is indeed a revision. Facts, just off the press, of periodical literature are not rare. Much of the material is based upon the author's personal observations and experiences in the line of duty. For the exotic diseases current conceptions are brought down to date. Constancy in literary usage is pleasing, the diction is the author's characteristic style, illustrations are graphic, typography excellent. For the boiled down facts about the common diseases of farm animals, their known etiology, their diagnosis, and their modern treatment, one looks it up in Udall.—[*The Practice of Veterinary Medicine. By D. H. Udall, B.S., D.V.M., D.Sc., Professor Emeritis of Veterinary Medicine, and Superintendent of the Ambulatory Clinic, New York State Veterinary College, Cornell University. 723 pages. 102 illustrations. Cloth. Published by the author, Ithaca, N. Y. Price, $6.50.*]

Care of Dogs

From the veterinarian's point of view, good books on the care of animals are now as welcome and appreciated as they were once unpopular and detested. The reasons for the change are not hard to find On the one hand, this type of literature has found a more fertile field to cultivate than recipes for disease, and on the other, the doctors have come to realize, none too soon, that in animals well bred and well managed lies their most useful field. Stupidity has been replaced by common sense and common understanding under a capable leadership on both sides. That is the way the good dog book now impresses the mind, and *Care of the Dog* is such a book. Although restricted space now forbids long reviews of books, there is always room enough in this column for a good word about a book that tells the world how to raise and enjoy animals, when to call in the doctor, and enlightens both owners and doctors as to their respective obligations—a book written for the lay dog owner rather than for the professional, that keeps the veterinarian informed on what dogdom is thinking about on housing, feeding, grooming, health, and management. [*Care of the Dog, 2nd Edition. By Will Judy. 96 pages. Cloth. Illustrated. Judy Publishing Company, Chicago. 1943. Price, $1.50.*]

THE NEWS

State Associations Go on the Air

Beginning the first week in January, 1944, a nation-wide series of radio programs will be inaugurated by 30 or more state veterinary associations. One or two provincial associations in Canada may also participate.

The series has been arranged through the collaboration of the AVMA public relations department as a service to farmers, livestock and poultry growers for the timely dissemination of information on disease problems and better methods of breeding, sanitation, and management. All-around conservation of food producing animals will also be stressed to prevent feed wastage, a factor which promises to be even more important this year than it was in 1943.

The broadcasts themselves have been made possible through the coöperation of the leading radio station in each participating state, the stations having agreed to contribute the time (about seven minutes for each talk) as a worthwhile public service. In most instances, the broadcasts will be a part of the farm programs of the respective stations.

26 Weekly Talks Scheduled

The program series will consist of 26 topics, covering the more important diseases of livestock and poultry, and discussing pointedly their prevention and control and as related to feeding, sanitation and breeding. In each instance, material for the talks has been furnished by competent veterinary authorities who will also check the finished scripts before they are sent out.

The subjects to be covered, together with the names of the individuals who have been requested or have consented to be responsible for the material, follow. The titles are not necessarily arranged in the order of their presentation over the radio.

Keeping Livestock Healthy—**C. D. Lowe.**

Swine Health—**L. P. Doyle.**

Dairy Cattle Health—**M. G. Fincher.**

Poultry Health—**J. R. Beach.**

Sheep Health—**F. E. Hull.**

Beef Cattle Health—**N. J. Miller.**

Nutritional Problems in Wartime Feeding—**H. J. Metzger.**

Saving the Barnyard Babies—**H. C. H. Kernkamp.**

Brucellosis—**W. L. Boyd.**

Hog Cholera—**J. S. Koen.**

Three Major Causes of Poultry Losses—**Frank Thorp, Jr.**

Mastitis—**C. S. Bryan.**

Swine Erysipelas—**L. Van Es.**

Sheep Parasites—**E. A. Benbrook.**

Poultry Sanitation—**C. D. Carpenter.**

Digestive Disorders of Swine—**G. A. Hawthorne.**

Livestock Parasites which Sabotage War Effort—**B. T. Simms.**

Encephalomyelitis—**M. S. Shahan.**

How the Veterinary Profession Is Helping the War Effort—**C. F. Schlotthauer.**

The McLean County System of Sanitation—**Robert Graham.**

Respiratory Diseases of Farm Animals—

Proper Care of Horses—**H. B. Treman.**

Rabies as a Danger to Farm Animals—**C. W. Bower.**

Diseases of Farm Animals Transmissible to Man—**I. A. Merchant.**

Shipping Fever—**A. H. Quin, Jr.**

Healthy Livestock—Foundation of American Prosperity—**L. A. Merillat.**

Broadcast Schedule

The series has been planned for weekly programs to cover the first six months of 1944. Most of the participating states have made arrangements with radio stations on this basis; in some states, the broadcasts will be given every two weeks and may then cover more than one topic. In a few instances, time has been provided for a monthly broadcast only.

While the original plan called for broadcasting over one station only in each state (preferably the station with the leading farm program), there are a few instances in which two or more stations in the same state owned by a single network have indicated a desire to use the programs. In other states, the series will be handled by the state-college station which carries the leading farm program.

Association Officials and State Veterinarians Will Collaborate

The radio series is being sponsored by the respective state veterinary associations in cooperation with their livestock sanitary officials and other veterinary agencies within the state.

Each state is selecting its own speakers to present the various topics.

Veterinarians throughout the country are urged to learn the time and the station over which the programs will be given in their respective states, so that they may listen in and also advise their farm clients. For detailed information, get in touch with the secretary of your state association or state veterinarian. An effort will be made to publish a schedule of the broadcasts, by states, in the February Journal.

Board and Committee Sessions in Chicago

Advantage was taken of the presence in Chicago, during the week of Nov. 29, 1943, of many association officers and members to schedule a number of organization sessions, particularly those with special wartime assignments. Among these groups were the Board of Governors and Executive Board; the Standing Committees on Public Relations, Nutrition, and Poultry; the Special Committees on Vital Statistics, and Postwar Planning; the Joint Committee on Foods of the AVMA-AAHA; and the Research Council.

Board of Governors and Executive Board

The usual winter meetings of these bodies were held on Nov. 29-30, 1943. On November 29, the Board of Governors (Drs. O. V. Brumley, C. W. Bower, and James Farquharson) and Executive Secretary Hardenbergh also attended, by invitation, a meeting of the directors and regional managers of the National Livestock Loss Prevention Board.

The Executive Board meeting on November 30 was attended by Drs. O. V. Brumley, chairman, 10th District; S. F. Scheidy, 2nd District; J. L. Axby, 3rd District; L. M. Hurt, 6th District; Ashe Lockhart, 8th District; W. A. Hagan, 9th District; C. C. Hastings, member-at-large, and C. W. Bower and James Farquharson, *ex-officio*.

The Board voted to renew active participation by the AVMA in the work of the National Livestock Loss Prevention Board including a representative, to be named by President Bower, on the latter's board of directors.

On recommendation of the Association's auditor, the transfer of the "Relief Fund" to the general AVMA Fund was approved, the former fund having been carried for several years only as a bookkeeping entry against the general assets of the Association.

It was voted to set the dates for the 1944 annual meeting, which is to be held in Chicago, for August 22-24, pending final arrangements with the hotel to be selected by a local committee. The meeting will combine three full program days. The question of exhibits was left for later decision.

Approval was given for the Committee on Journal to proceed with the final editing and arrangement of "Publication Rules of the AVMA" as prepared by Dr. L. A. Merillat, the material to be printed in suitable booklet form when ready.

The executive secretary was authorized to determine the procedure and costs for incorporation of the Research Council to qualify it as a recipient for tax-deductible donations under state and federal income tax laws.

Reports relating to the "Joseph G. Branch Institute of Engineering" which offers a correspondence course in veterinary medicine in South and Central American countries were received and referred to the Committee on Education for action.

Several membership matters were presented to the Board and referred for action in accordance with the by-laws.

The public relations work of the Association was reviewed, together with the state association radio programs to be sponsored in 1944 by some thirty states with the collaboration of the AVMA.

Dr. George H. Hart appeared before the Board to discuss further implementation of the work of the Inter-Association Council.

Special Committee on Postwar Planning

This committee held several sessions during the week and organized its activities, including surveys to be made in each state on postwar relocations and expanded opportunities in essential civilian services requiring veterinary personnel. Eight of the ten members of the committee were present and included Chairman H. L. Foust, Iowa; J. A. Barger, Iowa; Cliff D. Carpenter, Illinois; C. U. Duckworth, California; Col. J. E. Noonan, Illinois; Peter Olafson, New York; V. C. Pauhlman, Washington; W. H. Riser, Iowa, and President Bower, *ex officio*.

Committee on Public Relations

Chairman C. F. Schlotthauer and Drs. C. D. Lowe, E. C. W. Schuebel and Mark Welsh were present for this session which was also attended by President Bower and Executive Secretary Hardenbergh. The committee reviewed the publicity and public relations work of the association and made definite plans for extending this activity during the coming year with special emphasis to be placed on the work of veterinary practitioners.

Committee on Nutrition

All members were present: Chairman H. J. Metzger, Cliff D. Carpenter, George H. Hart, C. C. Hastings, and M. L. Morris. Among other items, the Committee outlined tentative plans for a series of authoritative articles on the fundamentals of nutrition which would be published in successive installments in the nutrition section of the Journal.

COMMITTEE ON VITAL STATISTICS

Chairman A. H. Quin, Jr. and Drs. A. B. Crawford, C. C. Franks, Robert Graham and L. M. Hurt, members, were on hand to lay preliminary plans for this important undertaking.

JOINT COMMITTEE ON FOODS

This meeting was held on Thursday evening, Dec. 2, 1943, and was attended by J. G. Hardenbergh, chairman, Louis A. Corwin, A. E. Wight and M. L. Morris, executive secretary. Dr. C. W. Bower served as proxy for Dr. O. V. Brumley. The wartime testing work of the past three months was reviewed and provision made for continuation of the work for an additional three-month period, this limited interval being necessitated by wartime conditions affecting food ingredients and the feed industry in general.

RESEARCH COUNCIL

Chairman E. T. Hallman, Brig. Gen. R. A. Kelser, and Drs. M. A. Emmerson, H. L. Foust, W. F. Guard, G. H. Hart, M. L. Morris, and C. F. Schlotthauer were present for the meeting on the evening of Nov. 30, 1943.

Action was taken relative to the procedures for handling and reviewing manuscripts submitted for publication in the *American Journal of Veterinary Research*. These are to be submitted as soon as received to the appropriate member of the Council for acceptance or rejection and are to be reviewed prior to editing. In the case of a manuscript submitted by a member of the Council, and pertaining to his own field, it is to be sent to the chairman who will then submit it to the member best qualified to review it for acceptability.

Action was taken to approve a fellowship award recommended by the Council's subcommitte on awards. Announcement of this fellowship will be made when arrangements are completed.

On a ballot election, the present officers of the Council were all re-elected: E. T. Hallman, *chairman;* R. A. Kelser, *vice-chairman;* H. H. Dukes, *secretary.*

H. L. FOUST, *Acting Secretary.*

Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

Benson, H. J., 603 S. West St., Angola, Ind.

Buchli, Richard, 7-9 E. 9th St., Oklahoma City, Okla.

Corcoran, James B., 7-9 E. 9th St., Oklahoma City, Okla.

Dietrich, L. E., Box 1116—408 Harding, Wichita, Kansas.

Edwards, M. J., Gen. Del., Norway, Maine.

Hall, Howard H., Spooner, Wis.

Holtzman, Jacob, Station Hosp., A.A.B., Ft. Douglas, Utah.

Hupp, Lynn D., 1339 E. Armour, Kansas City, Mo.

Ingram, H. E., c/o Swift & Co., 2300 S. Lamar, Dallas, Texas.

Krawitz, Leonard, Post Hdqs. 1318th Service Unit, Camp Pickett, Va.

Minnis, Russell G., Box 332, Lena, Ill.

O'Connell, H. J., State Fair Park Adm. Bldg., West Allis, Wis.

Peterson, Alfred, c/o The Borden Co., Browntown, Wis.

Pulling, Fred B. Jr., Millbrook, N. Y.

Rothe, W. E., 146 W. Lincoln Ave., Roselle Park, N. J.

Siver, Dougal, 429 Wrightwood Ave., Chicago, Ill.

Stevens, Blair A., Salt Lake City Airport, Salt Lake City, Utah.

Traskus, Anthony D., 511 Meldrum, Ft. Collins, Colo.

Weldner, Morris F., Box 205, Cody, Wyo.

Weston, Ralph S., 322 San Anselmo Ave., San Anselmo, Calif.

The 1944 Annual Meeting: August 22-24, Chicago

As voted by the House of Representatives at its session in St. Louis last August, the 1944 annual meeting will be held in Chicago. At the Executive Board session on Nov. 31, 1943, it was decided to schedule a three-day program and the dates of August 22-23-24, 1944 were approved, pending final arrangements for hotel headquarters. These will be selected by the local committee on arrangements, the skeleton organization of which will be set up shortly after January 1, 1944.

The Committee on Program (Section Officers) will be asked to plan for three full days of meetings, most of which will be general sessions. Section meetings probably will not be held but this decision is open pending future developments. Plans regarding scientific exhibits will also be deferred but the possibility of having technical (commercial) exhibits seems fairly good at this time.

The main theme of the 1944 program, as now envisioned, will be directed to problems concerning practitioners in their wartime work and the probable effects of postwar conditions.

U. S. Live Stock Sanitary Association Officers

The new officers elected at the annual meeting of the United States Live Stock Sanitary Association in Chicago, Dec. 1-3, 1943, are as follows:

President—J. M. Sutton, Sylvester, Ga.

First Vice President—C. U. Duckworth, Sacramento, Calif.

Second Vice President—Wm. Moore, Raleigh, N. Car.

Third Vice President—Will J. Miller, Topeka, Kans.

At the meeting of the Executive Committee of the association, Ralph A. Hendershott, Trenton, N. J., was named *secretary-treasurer*. Dr. Hendershott has been acting in that capacity since the resignation of Dr. Mark Welsh.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

BOYNTON, JAMES W.
299 Central Park Ave., Yonkers, N. Y.
D.V.M., Cornell University, 1940.
Vouchers: C. H. Hoefle and C. E. DeCamp

BRANDON, GLEN C.
Station Hosp., Camp Campbell, Ky.
D.V.M., Ohio State University, 1934.
Vouchers: L. L. Lieberman and L. P. Bailey.

CATALA, JUAN VARAS
U. S. B.A.I., P. O. Box 844, San Juan, P. R.
D.V.M., Ohio State University, 1910.
Vouchers: F. M. Guillot and A. Rivera.

DE SOUZA, ROBERTO
Escola Superior de Veterinaria, Caixa Postal 567, Gameleira, Belo Horizonte, Brazil.
D.V.M., Escola Superior de Agronomia e Veterinaria, de Belo Horizonte, 1937.
Vouchers: A. V. Machado and S. Torres.

FRAHM, E. W.
39 W. Maine, Milan, Mich.
D.V.M., Kansas State College, 1935.
Vouchers: E. C. W. Schubel and H. P. Eames.

GAPUZ, DOMINGO B.
Box 24, Campus Station, Cincinnati, Ohio.
D.V.M., University of Philippines, 1934.
Vouchers: O. V. Brumley and W. F. Guard.

GOLLEHON, C. W.
c/o Station Hosp., Salinas, Calif.
B.V.Sc., Ontario Veterinary College, 1933.
Vouchers: J. R. Nettles Jr. and R. I. Hostetler.

MAAS, E. E.
U. S. B.A.I., P. O. Box 844, San Juan, P. R.
D.V.M., Kansas City Veterinary College, 1917.
Vouchers: F. M. Guillot and A. Rivera.

O'FLAHERTY, FRED
c/o University of Cincinnati, Cincinnati, Ohio.
D.V.M., Cincinnati Veterinary College, 1920.
Vouchers: O. V. Brumley and W. F. Guard.

POU, A. C.
P. O. Box 363, Ponce, P. R.
D.V.M., Kansas City Veterinary College, 1915.
Vouchers: A. Rivera and F. M. Guillot.

RIEMENSCHNEIDER, M. N.
Salida, Colo.
D.V.M., Colorado State College, 1935.
Vouchers: J. Farquharson and I. E. Newsom.

WILWERTH, A. M.
Escola Superior de Veterinaria, Caixa Postal 567, Gameleira, Belo Horizonte, Estado de Minas, Brazil.
D.V.M., Escola De Agricultura e Veterinaria-Vicosa, 1938.
Vouchers: S. Torres and A. V. Machado.

Second Listing

Anderson, J. Gordon, 1016 9th Ave., West, Calgary, Alberta, Can.
Butler, Elliott A., c/o Station Veterinarian, Fort Benj. Harrison, Ind.
Cole, Eugene W., South Charleston, Ohio.
Hershman, H. M., 126 E. Main St., Uniontown, Pa.
Hoag, Oby J., Greene, N. Y.
Levene, Sydney P., 3380 Portland Rd., Salem, Ore.
Taylor, Howard C., 3130 W. Slauson Ave., Los Angeles, Calif.
Stoner, Norman H., Station Veterinarian, Camp Grant, Ill.
Wesner, Marnie E., Walnut Ill.
Zook, Roy F. Jr., c/o Station Veterinarian, Camp Grant, Ill.

1943 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Alabama Polytechnic Institute*

ADAMS, CARROLL P., D.V.M.
303 N. Scott St., Camilla, Ga.
Vouchers: F. P. Woolf and J. K. MacNamee.

BASS, E. HUGH, D.V.M.
Rt. 2, Wilson, N. Car.
Vouchers: F. P. Woolf and J. K. MacNamee.

BOYD, MARCELLUS, JR., D.V.M.
68 S. W. 21st Rd., Miami, Fla.
Vouchers: F. P. Woolf and J. K. MacNamee.

BRINKMAN, BEN A., D.V.M.
113 Helvenston Ave., Live Oak, Fla.
Vouchers: F. P. Woolf and J. K. MacNamee.

BROWN, JAMES E., D.V.M.
Rich Square, N. Car.
Vouchers: F. P. Woolf and J. K. MacNamee.

BURRISS, WILLIAM M., D.V.M.
Rt. 1, Anderson, S. Car.
Vouchers: F. P. Woolf and J. K. MacNamee.

CAPLINGER, WILLIAM O., D.V.M.
219 E. Campbell St., Frankfort, Ky.
Vouchers: F. P. Woolf and J. K. MacNamee.

CLOWER, THOMAS A., D.V.M.
312 Franklin St., Douglas, Ga.
Vouchers: I. S. McAdory and W. E. Cotton.

COLE, NORMAN, D.V.M.
11 Rugby Rd., Buffalo, N. Y.
Vouchers: F. P. Woolf and J. K. MacNamee.

CONNER, ROBERT F., D.V.M.
Jasper, Ala.
Vouchers: F. P. Woolf and W. E. Cotton.

COWART, RAY R., D.V.M.
Arlington, Ga.
Vouchers: F. P. Woolf and J. K. MacNamee.

CUNNINGHAM, W. W., D.V.M.
935—15th Ave., S., St. Petersburg, Fla.
Vouchers: F. P. Woolf and W. S. Bailey.

DAVIS, C. S., D.V.M.
109—7th St., N.E., Atlanta, Ga.
Vouchers: F. P. Woolf and J. K. MacNamee.

DAVIS, T. C., D.V.M.
337 W. Magnolia, Auburn, Ala.
Vouchers: F. P. Woolf and W. E. Cotton.

DIMMERLING, LUCILLE S., D.V.M.
Box 29, Notasulza, Ala.
Vouchers: F. P. Woolf and J. K. MacNamee.

DIXON, JAMES T., D.V.M.
South Main, Winston-Salem, N. Car.
Vouchers: W. E. Cotton and F. P. Woolf.

GEORGE, DAVID, D.V.M.
5908 6th Ave., S., Birmingham, Ala.
Vouchers: F. P. Woolf and J. K. MacNamee.

HARMAN, C. C., D.V.M.
Floyd, Va.
Vouchers: W. E. Cotton and F. P. Woolf.

HARRIS, J. R., D.V.M.
P. O. Box 42, Tifton, Ga.
Vouchers: E. S. Winters and W. E. Cotton.

HART, J. T., D.V.M.
Box Springs, Ga.
Vouchers: F. P. Woolf and W. E. Cotton.

HAYLES, MARION L., D.V.M.
Frisco City, Ala.
Vouchers: F. P. Woolf and J. K. MacNamee.

HEAD, THOS. E. JR., D.V.M.
P. O. Box 246, Andalusia, Ala.
Vouchers: F. P. Woolf and J. K. MacNamee.

HENDERSON, FORREST E., D.V.M.
Mountain Creek, Ala.
Vouchers: F. P. Woolf and J. K. MacNamee.

HICKS, ROBERT G., D.V.M.
1019 Western Ave., Rocky Mount, N. Car.
Vouchers: F. P. Woolf and J. K. MacNamee.

HILL, CHARLES P., D.V.M.
R.F.D., Williamson, Ga.
Vouchers: F. P. Woolf and J. K. MacNamee.

HILLHOUSE, HARRY L., D.V.M.
2716 35th Ave., N., Birmingham, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

JOLLY, BOYCE M., D.V.M.
Ayden, N. Car.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

JUSTO, JOSEPH C., D.V.M.
Rt. 6, Box 144-F, Birmingham, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

KRONFELD, TURNER, D.V.M.
Box 2003, Herndon, Va.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

LEVY, MORRIS, D.V.M.
c/o Mrs. J. E. Stern, 1118 E. 9th St., Brooklyn, N. Y.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

MCCRORY, JOHN A., D.V.M.
Rt. 3, Greenville, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

MCGEE, HAROLD L., D.V.M.
190 E. Fourth St., Hialeah, Fla.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

MCWILLIAMS, FRANK A. JR., D.V.M.
711 Norten Ave., Sylacauga, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

MARTIN, JAMES A., D.V.M.
100 W. Broadway, Gettysburg, Pa.
Vouchers: O. E. Jung, Jr. and E. S. Winters.

MATTHEWS, OLYN K., D.V.M.
Louisville, Ala.
Vouchers: W. E. Cotton and I. S. McAdory.

NALL, JOHN D., D.V.M.
Rt. 2, Georgiana, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

NETTLES, W. DOUGLASS, D.V.M.
226 E. Magnolia Ave., Auburn, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

PASS, WILLIAM E., D.V.M.
Bloutsville, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

REED, E. L. JR., D.V.M.
1760 E. Blount St., Pensacola, Fla.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

ROSS, ALAN, D.V.M.
50-1 Poinciana Pl., Key West, Fla.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

SCOVILLE, SHELDON H., D.V.M.
39 Rhoda Ave., Nutley, N. J.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

SLEDGE, JOE L., D.V.M.
Greensboro, Ala.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

SMITH, JOSEPH S., D.V.M.
Whiteville, N. Car.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

STRATMEYER, ERNEST H., D.V.M.
McNoel, Ill.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

WEIR, HOWARD T., D.V.M.
Media, Pa.
Vouchers: J. K. MacNamee and O. E. Jung, Jr.

Iowa State College

ALBRECHT, JOSEPH W., D.V.M.
Tiskilwa, Ill.
Vouchers: H. D. Bergman and G. R. Fowler.

ANDERSON, STILAF, D.V.M.
Holt, Minn.
Vouchers: H. D. Bergman and H. L. Foust.

BARRINGTON, JAMES A., D.V.M.
Alexis, Ill.
Vouchers: D. E. Jasper and G. H. Conner.

DUNNWALD, JOHN H., D.V.M.
703 E. Fourth St., St. Paul, Minn.
Vouchers: C. Murray and E. A. Hewitt.

ENINGER, ROBERT A., D.V.M.
Rt. 1B, Spencer, Iowa
Vouchers: D. E. Jasper and G. H. Conner.

ENOE, STANLEY R., D.V.M.
7 N. Keeler Ave., Chicago, Ill.
Vouchers: H. D. Bergman and D. A. Smith.

ESPENSEN, LAWRENCE L., D.V.M.
McAllen, Texas.
Vouchers: G. R. Fowler and H. D. Bergman.

FINCH, ROBERT W., D.V.M.
Kelley, Iowa.
Vouchers: C. H. Covault and E. A. Benbrook.

FLANARY, JAMES B., D.V.M.
St. Charles, Minn.
Vouchers: H. D. Bergman and C. H. Covault.

FRUIT, DAVID J., D.V.M.
Rt. 3, New Brunswick, N. J.
Vouchers: R. A. Packer and I. A. Merchant.

GRAY, BURTON J., D.V.M
1755 Dixon St., Manhattan Beach, Calif.
Vouchers: H. D. Bergman and H. F. Beardmore.

HARRY, MAX W., D.V.M.
825 Milan Ave., So. Pasadena, Calif.
Vouchers: G. R. Fowler and E. A. Hewitt.

HENNING, ELVERO R., D.V.M.
Scranton, Iowa.
Vouchers: C. H. Covault and G. R. Fowler.

HUMKE, LAURENCE W., D.V.M.
Ackley, Iowa.
Vouchers: C. H. Covault and G. H. Conner.

IDSVOOG, ORIS P., D.V.M.
Cooperstown, N. Dak.
Vouchers: L. E. St. Clair and H. F. Beardmore.

ISAKSON, ERIC W., D.V.M.
1164 Adams Ave., Ogden, Utah.
Vouchers: H. D. Bergman and H. L. Foust.

JANSON, ELDON J., D.V.M.
Clarion, Iowa.
Vouchers: G. R. Fowler and C. H. Covault.

JONES, JACK M., D.V.M.
Mountain Grove, Mo.
Vouchers: G. R. Fowler and H. D. Bergman.

KANEGIS, LEON A., D.V.M.
25 Sea-Foam Ave., Winthrop, Mass.
Vouchers: C. H. Covault and H. D. Bergman.

KJAR, HAROLD A., D.V.M.
R.R. No. 2, Lexington, Neb.
Vouchers: D. A. Smith and G. H. Conner.

KOPP, WENDELL J., D.V.M.
1010 W. Iowa Ave., Indianola, Iowa.
Vouchers: R. Allen Packer and H. D. Bergman.

LADWIG, VAYLORD D., D.V.M.
212 N. Hazel Ave., Ames, Iowa.
Vouchers: H. D. Bergman and E. A. Hewitt.

LANE, JAMES D., D.V.M.
4320 Butler Pl., Oklahoma City, Okla.
Vouchers: G. H. Conner and G. R. Fowler.

MILLER, JEFFREY J., D.V.M.
c/o Dr. E. J. Dahlquist, Fayette, Iowa.
Vouchers: E. A. Hewitt and C. H. Covault.

OLSON, ARNOLD T., D.V.M.
Sioux Rapids, Iowa.
Vouchers: C. H. Covault and E. A. Hewitt.

OLSON, GUSTAF J., D.V.M.
24 First St., Cloquet, Minn.
Vouchers: H. D. Bergman and G. R. Fowler.

PETERSON, PHILIP C., D.V.M.
Aurelia, Iowa.
Vouchers: G. R. Fowler and C. H. Covault.

PIERSON, ROBERT E., D.V.M.
3481 Washington St., San Francisco, Calif.
Vouchers: G. R. Fowler and E. A. Hewitt.

REINERTSON, K. L., D.V.M.
Kelley, Iowa.
Vouchers: E. A. Hewitt and C. H. Covault.

ROHWER, HAROLD H., D.V.M.
1811—8th Ave., N., Ft. Dodge, Iowa.
Vouchers: C. Murray and S. H. McNutt.

RUEBKE, H. J., D.V.M.
Ada, Minn.
Vouchers: C. H. Covault and H. L. Foust.

SCHNEIDER, ROBERT, D.V.M.
Elgin, Iowa.
Vouchers: G. R. Fowler and H. D. Bergman.

SCHUKNECHT, ROBERT, D.V.M.
821 N. Wisconsin St., Port Washington Wis.
Vouchers: G. R. Fowler and H. D. Bergman.

SCOTT, A. M., D.V.M.
742—40th St., Des Moines, Iowa.
Vouchers: G. R. Fowler and I. A. Merchant.

STANTON, HARLAN M., D.V.M.
1338 Birchwood Ave., Chicago, Ill.
Vouchers: G. R. Fowler and I. A. Merchant.

THOMPSON, JUDSON, D.V.M.
437—13th St., Windom, Minn.
Vouchers: C. H. Covault and R. A. Packer.

THOMPSON, WAYNE H., D.V.M.
Earlville, Iowa.
Vouchers: G. R. Fowler and C. H. Covault.

THORNTON, JAMES W., D.V.M.
R.R. No. 1, Ankeny, Iowa.
Vouchers: G. R. Fowler and C. H. Covault.

UNGS, DAVID H., D.V.M.
302 W. Main, Dyersville, Iowa.
Vouchers: C. H. Covault and E. A. Hewitt.

WAGNER, ROBERT E., D.V.M.
Glidden, Iowa.
Vouchers: G. R. Fowler and C. H. Covault.

WESTERFELDT, MARVIN H., D.V.M.
Rt. No. 2, Box 42, Reedsburg, Wis.
Vouchers: H. D. Bergman and G. R. Fowler.

WHITFORD, RUSSELL L., D.V.M.
R.F.D. No. 3, Darlington, Wis.
Vouchers: G. H. Conner and L. E. St. Clair.

YODER, WAYNE D., D.V.M.
437 Hayward Ave., Ames, Iowa.
Vouchers: H. D. Bergman and G. R. Fowler.

YOUNG, ROBERT M., D.V.M.
Quartermaster Remount Depot, Front Royal, Va.
Vouchers: W. R. Wolfe and W. P. Barchfeld.

University of Pennsylvania*

ALBERTS, JOSEPH O., V.M.D.
105 E. High, Urbana, Ill.
Vouchers: W. J. Lentz and M. A. Emmerson.

ARNOLD, MAURICE W., V.M.D.
161 E. Main St., Stafford Springs, Conn.
Vouchers: T. Castor and W. J. Lentz.

BENDER, JOHN W., V.M.D.
511 E. Main St., Lititz, Pa.
Vouchers: W. B. Boucher and E. T. Booth.

BISWANGER, LEONARD R., V.M.D.
6521 N. 13th St., Philadelphia, Pa.
Vouchers: F. E. Lentz and J. D. Beck.

BLUM, CLAYTON I., V.M.D.
331 South St., Philadelphia, Pa.
Vouchers: W. B. Boucher and F. E. Lentz.

BOLLENS, KENNETH L., V.M.D.
2329 Perrysville Ave., N.S., Pittsburgh, Pa.
Vouchers: D. K. Detweiler and J. D. Beck.

BRACHMAN, BERNARD, V.M.D.
R.D. No. 1, Millville, N. J.
Vouchers: D. K. Detweiler and W. J. Lentz.

BROWN, J. WM., V.M.D.
460 Grove St., Irvington, N. J.
Vouchers: D. K. Detweiler and F. G. Sperling.

BURTON, HAROLD F., V.M.D.
Monkton, Md.
Vouchers: F. E. Lentz and W. J. Lentz.

CARLSON, VANCE A., V.M.D.
R.F.D. No. 2, Port Allegany, Pa.
Vouchers: M. A. Emmerson and H. M. Martin.

DAUGHERTY, E. BLOXOM JR., V.M.D.
Delmar, Md.
Vouchers: W. B. Boucher and E. T. Booth.

DERBER, LEE W., V.M.D.
405 N. Main St., Mt. Carroll, Ill.
Vouchers: E. T. Booth and W. B. Boucher.

DEUBLER, J. A., V.M.D.
Newtown, Bucks Co., Pa.
Vouchers: E. T. Booth and E. L. Stubbs.

DOUGHERTY, ELLSWORTH 3rd, V.M.D.
Willoway Farm, Rutledge, Pa.
Vouchers: E. L. Stubbs and F. G. Sperling.

DOWNING, THEODORE O., V.M.D.
Rt. No. 1, Ettrick, Va.
Vouchers: F. E. Lentz and D. W. Crisman.

FINKELSTEIN, JACOB, V.M.D.
836 Eaton Rd., Drexel Hill, Pa.
Vouchers: D. L. Coffin and H. M. Martin.

FRATER, ROBERT B., V.M.D.
676 Santa Rosa Ave., Berkeley, Calif.
Vouchers: W. B. Boucher and E. T. Booth.

GEMBERLING, ARTHUR R. JR., V.M.D.
65 N. Main St., Woodstown, N. J.
Vouchers: D. G. Lee and E .T. Booth.

GRIM, COURTNEY, V.M.D.
375 National Ave., Winchester, Va.
Vouchers: F. E. Lentz and H. M. Martin.

GULICK, WILLIAM C., V.M.D.
Blooming Glen, Pa.
Vouchers: W. B. Boucher and E. T. Booth.

HAVERSTICK, DONALD, V.M.D.
19 N. Lafayette Ave., Ventnor City, N. J.
Vouchers: D. L. Coffin and W. B. Boucher.

HETTIG, EDWIN S., V.M.D.
601 Mahoning St., Lehighton, Pa.
Vouchers: J. D. Beck and F. E. Lentz.

ISBEN, DAVID, V.M.D.
23 N. Dawes Ave., Kingston, Pa.
Vouchers: J. D. Beck and F. E. Lentz.

LEBOVIT, GEORGE B., V.M.D.
608 S. 18th St., Newark, N. J.
Vouchers: W. B. Boucher and W. J. Lentz.

LEWIS, JONATHAN S. JR., V.M.D.
3 Elm St., Concord, N. H.
Vouchers: J. D. Beck and W. J. Lentz.

MCCULLOUGH, JOHN D., V.M.D.
Corsica, Pa.
Vouchers: F. E. Lentz and W. J. Lentz.

MCGRATH, JOHN T., V.M.D.
3220 Brunswick Ave., Drexel Hill, Pa.
Vouchers: W. B. Boucher and L. A. Klein.

MATHEY, WILLIAM J. JR., V.M.D.
77 Washington Ave., Clifton, N. J.
Vouchers: F. E. Lentz and E. L. Stubbs.

MOOR, JOHN W., V.M.D.
41 Kent St., Trenton, N. J.
Vouchers: M. A. Emmerson and H. M. Martin.

MOOREHEAD, C. ARNOLD, V.M.D.
Public Square, Bedford, Pa.
Vouchers: F. E. Lentz and M. A. Emmerson.

MOULTON, WILLIAM M., V.M.D.
22 Ferris St., St. Albans, Vt.
Vouchers: H. M. Martin and E. T. Booth.

PATTERSON, ARTHUR W. JR., V.M.D.
835 S. Newberry St., York, Pa.
Vouchers: W. J. Lentz and M. A. Emmerson.

RAMEY, DONALD B., V.M.D.
22 S. Grant St., Waynesboro, Pa.
Vouchers: W. J. Lentz and F. E. Lentz.

RICKER, H. GLENN JR., V.M.D.
State Rd. Hill, Waynesboro, Pa.
Vouchers: W. B. Boucher and M. A. Emmerson.

SHINN, B. J. JR., V.M.D.
7432 Gleneagles Rd., Norfolk, Va.
Vouchers: F. G. Sperling and D. K. Detweiler.

SMITH, HAROLD M. S., V.M.D.
132 Evergreen Pl., East Orange, N. J.
Vouchers: J. J. Devine and J. D. Beck.

TYLER, GEORGE W., V.M.D.
4217 Fern Blvd., Drexel Hill, Pa.
Vouchers: E. T. Booth and D. G. Lee.

Texas A. & M. College

BLACK, W. L. JR., D.V.M.
Box 29, Portales, N. M.
Vouchers: W. L. Black and R. P. Marsteller.

Washington State College

BEASLEY, ROBERT P., D.V.M.
2900 Francis, Los Angeles, Calif.
Vouchers: E. E. Wegner and L. E. Pike.

Second Listing

Colorado State College

Stein, Arnold J., D.V.M., 321 S. Adams, Monte Vista, Colo.

Ontario Veterinary College

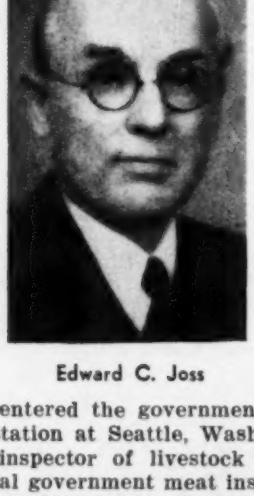
Hanna, G. E., B.V.Sc., Stayner, Ontario, Can.

Washington State College

Hinds, John L., D.V.M., 552 6th Ave., Yuma, Ariz.
Seghetti, Lee, D.V.M., 521 W. Arthur, Bozeman, Mont.

U. S. GOVERNMENT

Chief Joss Retired.—Dr. Edward C. Joss (Chi. '02), chief of the Meat Inspection Division,* Bureau of Animal Industry, USDA, was retired Jan. 1, 1944, after completing forty-two years of service. He was succeeded by Dr. George E. Totten, who was designated as acting chief of the Division.



Edward C. Joss

Dr. Joss entered the government service in 1902 with station at Seattle, Wash., where he served as inspector of livestock and meats. Since general government meat inspection was instituted in 1906, he was continuously connected with that branch of the Bureau service, and after serving in key positions, in important abattoir centers, he was made chief of the Division, March 15, 1936.

*Now Food Distribution Administration.

Aside from the duties of his several assignments, Dr. Joss was sent to foreign countries on special missions, one of which was a tour of duty in Australia and New Zealand where he was delegated to study the livestock programs of these countries. He also was sent to Alaska to study the production, slaughtering, and marketing of reindeer. Dr. Joss is a native of Brown County, Kansas, where he was born Feb. 28, 1873.

W. A. Hagan to Be Special Assistant to BAI Chief.—A Department of Agriculture release of Dec. 14, 1943, announced that W. A. Hagan, dean of the New York State Veterinary College, has been made special assistant to Dr. A. W. Miller, chief of the Bureau of Animal Industry, and has been granted a year's leave of absence by Cornell University.

In his new position, the announcement stated, Dr. Hagan will contribute his experience in the animal industry field, particularly in animal pathology and bacteriology, in assisting the



W. A. Hagan

chief of the Bureau and the administrator of research in the formulation and development of research and control programs.

Dr. Hagan has been dean of the Veterinary College at Cornell since 1932. A native of Kansas, he received his veterinary degree from Kansas State College in 1915 and M.S. from Cornell in 1917. He was instructor in pathology at Kansas State 1915-16, in veterinary obstetrics at Cornell in 1916-17, and in bacteriology in 1917-18. He became assistant professor and then professor in the latter year. In 1921-22, he was a research assistant in the Department of Animal Pathology, Rockefeller Institute, and studied in Europe on a fellowship of the International Education Board in 1925-26. Dr. Hagan is widely known for his researches in animal diseases, is an outstanding figure in the field of veterinary medical education, and is an active member of many scientific and professional organizations.

William C. Herrold Retires.—After thirty-five years with the U. S. Department of Agriculture, Dr. William C. Herrold (OSU '07], assistant chief of the Meat Inspection Division will leave Washington, D. C., to accept a position with the Columbus, Ohio, city health department, beginning Nov. 15, 1943. He has accepted the optional retirement provided employees who have served thirty-five years in the Department.

His years of service to the livestock and meat industries, through the facilities of the Bureau of Animal Industry, began on June 15, 1907.

Since March 16, 1935, he has served as assistant chief of the Meat Inspection Division in Washington, D. C. Previously, he was in charge of stockyards inspection at Omaha, Cincinnati, and Wichita.

Dr. Herrold's experience has paralleled somewhat that of his brother, Dr. C. H. Herrold, who retired on Jan. 1, 1943, and who now holds a position with the Dayton, Ohio, city health department similar to the one Dr. William Herrold has accepted at Columbus.

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Tick Eradication.—The government maintains a strip of land and a force of inspectors along the Rio Grande to patrol the buffer zone in order to prevent ticky cattle from drifting across the international boundary. Says a November release of the USDA, "The effectiveness of the tick eradication campaign, begun in 1906, is credited to the foresight and tenacity of the veterinary profession." State and county officials and certain cattle owners are credited with effective coöperation.

AMONG THE STATES

Canada

Ontario College.—Among the early graduates of the Ontario veterinary colleges who have passed away recently were: E. E. Cunningham, '87 of Valparaiso, Ind.; and J. C. Whitney, '83 of Hillsdale, Mich., both prominent local practitioners; and Harry R. Church, '92 of Harrisburg, Pa.

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The Veterinary Medical Association of Alberta publishes a journal named the *Veterinary News*, a quarterly four-page leaflet full of provincial and national news. The officers (1943) are: J. Gordon Anderson, Calgary, *president;* W. G. Black, Lacombe, *vice-president;* J. C. Wainwright, Calgary, *secretary-treasurer.*

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The October issue of *Veterinary News*, published by the Veterinary Medical Association of Alberta, contains a brief history of the Dominion veterinary service by Dr. Chas. A. Mitchell, pathologist of the Division of Animal Pathology, Department of Agriculture, Dominion Government. Drs. William Osler and Duncan McEachran pioneered in the movement in 1874 that lead to the forming of the Health of Animals Branch, and Dr. J. G. Rutherford was its first veterinary director-general in 1902. [His successors were Torrance, Hilton, and Cameron.] The pathologists preceding Dr. Mitchell have been Drs. C. H. Higgins, Seymour Hadwen, and E. A. Watson. In 1937, the Health of Animals Branch became the Health of Animals Division attached to the Production Service, and the Division of Animal Pathology was transferred to the Dominion Science Service, both under the Department of Agriculture. Dr. M. Barker is Acting Veterinary General since the retirement of Lt. Col. A. E. Cameron in March, 1943.

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Minister Gardiner, of the Dominion Department of Agriculture, in urging Canadian farmers to refrain from sending unfinished cattle to the market, stressed the economic folly of doing so where grain feed is available. Grain feed, at reasonable prices, is assured by the Dominion government where there is a feed shortage.

Colorado

Professor R. F. Bourne Honored.—On the occasion of his appearance on the program of the Eastern Iowa Association in October, 1943, R. F. Bourne, professor of veterinary physiology, Colorado State College, was presented with a gold watch at a luncheon given in his honor by alumni of the Kansas City Veterinary College where he was graduated in 1906. J. A. Barger ('08) acted as the toastmaster and J. V. Lacroix ('06) made the presentation speech. Among the alumni association's invited guests were President Bower and Editor Merillat of the AVMA, and Editor Anderson of the *Cedar Rapids Gazette.*

Florida

On Dec. 1, 1943, the government released 4,250 square miles of territory in the state, and in Texas, as free from cattle ticks. The Florida area includes Collier and Hendry counties.

Illinois

When the Holstein-Friesian prodigy, Carnation Victory Bend, was put up at auction in DeKalb, Oct. 2, 1943, he was knocked down to the State of Illinois for $3,100,000 in War Bonds and turned over to the State School for Boys—record price ever paid for a bovine animal.

Personal.—T. J. Foster (O.S.U. '09), longtime central Illinois practitioner, is now engaged in federal poultry inspection work with station at Cedar Rapids, Iowa.

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State Board Examinations.—Twenty-five candidates for license to practice in the state took the December examinations in Chicago Dec. 6-7, 1943. The majority were about to enter rural practice or state inspection work.

Iowa

East Central Association.—"Swine Practice Problems" featured the dinner session held at the Hotel Roosevelt, Cedar Rapids, Nov. 18, 1943. Chief Veterinarian C. C. Frank spoke on anthrax control and outlined the program of the annual state meeting in January.

Kansas

Northwest Kansas Veterinary Association.—It was cold and snowing on the afternoon of Nov. 7, 1943, at St. Francis, out in the short grass country where Kansas, Nebraska, and Colorado join. District 1 was having a quarterly meeting. There were twenty-one present, which represented a high percentage of the veterinarians in district 1. There was a sprinkling of three state veterinarians, one federal, two commercial men, an extension veterinarian, two college professors, and the rest were young, middle-aged and old practitioners. Some drove 250 miles to attend the meeting. The educator brought from the halls of learning that which science thought could be done, the men in the field showed what might be done, and also, what can and is being done. Progress ahead of the printed page was being born.

More specifically, **Edwin J. Frick** talked on cattle practice in general, with discussion on leucosis, digestive disturbances, cesarian section, and necrotic pododermatitis. **George A. Rathman** explained in detail the new regulations on brucellosis and community-sales problems.

J. W. Lumb, extension veterinarian, is doing a real job with the Kansas sectional veterinary meetings. They engender a coöperative feeling among practitioners servicing the territory and create a feeling of *camaraderie* among the commercial and federal men in the state.

s/E. J. FRICK, *Resident State Secretary.*

Maine

L. B. Denton has resigned as junior veterinarian with the U. S. BAI after eight years of service, two of which were spent in charge of the Bang's disease testing laboratory at Augusta, to enter general practice at Dover-Foxcroft.

Massachusetts

State Association.—The regular meeting of the association was held at the Hotel Vendome, Boston, Nov. 17, 1943, and was attended by over 50 members and a number of guests. It was an outstanding program and many comments have been heard regarding the program, which was as follows:

Geo. H. Hopson—"Short-Time Milking of Dairy Cows."

R. H. Bruce—"The Neuritis Complex in Dogs."

James DeNormandie, director of the state division of livestock and disease control spoke on the activites of his division. The new assistant director of the Division of Livestock Disease Control, Dr. W. S. Stone, was voted into membership.

s/H. W. JAKEMAN, *Secretary.*

Montana

E. A. Tunnicliff (KSC '21), Bozeman, has taken a leave of absence from the Veterinary Research Laboratory of the Montana Agric. Experiment Station to serve as consulting veterinarian to the Chinese ministry of agriculture.

Ernest C. Stone (Wash. '43) is now a lieutenant (j.g.), U.S.N.R., stationed at the naval training school at Cornell University, Ithaca, N. Y.

Wm. M. Townsend (Wash. '43) has entered private practice at Rigby, Idaho. He resigned his position with the Montana Live Stock Sanitary Board.

• • •

Wartime Circulars.—The veterinary research laboratory and livestock sanitary board are publishing a series of circulars for farmers and ranchers. The title is *Wartime Service: Produce More, Save More.* No. 4 treats on coccidiosis in feedlot lambs and No. 5 on the prevention of intestinal worms in lambs.

New Jersey

Personal.—Dr. Peter F. Runyon (U.P. '12), mayor of Freehold since 1926, was given a rousing testimonial dinner by 200 fellow citizens Oct. 21, 1943, at the American Hotel of that city. The occasion was a celebration of Mayor Runyon's decision to run for reëlection, after having decided to retire from the office he has held with credit through many years. Prominent figures in education, religion, and industry participated in the ceremony which included the presentation of a silver service to Mayor and Mrs. Runyon. The mayor has been a member of the AVMA since 1913.

New York

Veterinary Medical Association of New York City.—The New York City Association held its regular meeting in the ballroom of the Hotel New Yorker Dec. 1, 1943. **C. Lawrence Blakeley** of the Angell Memorial Hospital, Boston, Mass., spoke on the subject, "Surgical Repair of Perineal Hernia in Dogs."

Pennsylvania

In 1816, John Scott, an Edinburgh chemist, bequeathed to Philadelphia $4,000 from which the income was to pay for copper medals and cash awards for the "most deserving." Three such premiums and medals were awarded in November, 1943, to scientists Richard E. Shope, Commander, U.S.N.R., and the discoverer of the complex etiology of swine influenza, Otto Stader, inventor of the reduction and fixation splint, and John C. Garand, inventor of the army automatic rifle which bears his name.

Utah

F. H. Melvin, resident state secretary, writes that probably there will be no meeting this year of the Intermountain Live Stock Sanitary Association, which is usually held in Salt Lake City in January. An informal local meeting may be arranged for that time.

Virginia

The Southwest Virginia Veterinarians met at the Patrick Henry Hotel, Roanoke, Oct. 28, 1943, at which time it was decided to meet once a month, either at Roanoke or Blacksburg. The second meeting was held Nov. 18, 1943. A short program on timely subjects and a discussion of problems confronting practitioners will be the theme of these meetings.

Washington

State Association.—The annual meeting of the Washington Veterinary Medical Association was held in Yakima, Oct. 22, 1943, with an attendance of forty. A postwar plan for veterinarians of this state was discussed and the president was requested to appoint a committee to study the question.

s/J. L. ELLIS, *Resident State Secretary.*

Wisconsin

Southeast Wisconsin Association.—An interesting meeting was held at Moose Hall, Watertown, on Nov. 11, 1943, with an attendance of 58 members. Dr. L. Dykstra of Cutter Laboratories was the speaker and his subject, "Visual Swine Diseases" provoked a lively and timely discussion.

Northeast Wisconsin Association.—This association held its meeting on Oct. 20, 1943, at Appleton, with 31 present. The guest speaker was **Dr. A. H. Craige Jr.**, of Indianapolis, Ind.

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Northwest Wisconsin Association.—A meeting of this association was held on Sept. 11, 1943, at Chippewa Falls, with an attendance of 65 members. A clinic was conducted in the afternoon, with a banquet in the evening.
GOV

• • •

Free-for-all vaccination against brucellosis got a set back when the state legislature, about to pass a law permitting all hands to vaccinate cattle with free vaccine, was reminded that the distribution of the vaccines, except to accredited veterinarians, was prohibited by law and that the State Supreme Court had decided that only the state could distribute such a vaccine, legally. [Will the opposition of organized farmers to the proper use of veterinary science never end?—Ed.]

State Board Examinations

Virginia—The Virginia State Board of Veterinary Examiners will hold their next examination at the John Marshall Hotel, Richmond, Va., Jan. 12, 1944, at 9 a.m. For further particulars, address: H. H. Adair, 107 Water St., Bristol, Va.

COMING MEETINGS

University of Pennsylvania. Annual Conference for Veterinarians. Jan. 4-5, 1944. G. A. Dick, dean, School of Veterinary Medicine, Philadelphia, Pa.

California State Veterinary Medical Association. In connection with the short course, State College, San Luis Obispo, Calif., Jan. 4-5-6, 1944. S. T. Michael, 2500 Sixteenth St., San Francisco, Calif., secretary.

Cornell University. Annual Conference for Veterinarians. Ithaca, N. Y., Jan. 5-7, 1944. W. A. Hagan, dean, Veterinary College, Ithaca, N. Y.

Ohio State Veterinary Medical Association. Deshler-Wallick Hotel, Columbus, Ohio, Jan. 5-6, 1944. R. E. Rebrassier, The Ohio State University, Columbus, Ohio, secretary.

Wisconsin Veterinary Medical Association. Hotel Retlaw, Fond du Lac, Wis., Jan. 6-7, 1944. B. A. Beach, Genetics Building, University of Wisconsin, Madison, Wis., secretary.

Tennessee Veterinary Medical Association. Nöel Hotel, Nashville, Tenn., Jan. 10, 1944. A. C. Topmiller, 530 W. Main St., Murfreesboro, Tenn., secretary.

Oklahoma Veterinary Medical Association. Twenty-ninth annual meeting, Oklahoma City, Okla., Jan. 10-11, 1944. F. Y. S. Moore, McAlester, Okla., secretary-treasurer.

Minnesota State Veterinary Medical Society. Hotel Nicollet, Minneapolis, Minn., Jan. 10-12, 1944. H. C. H. Kernkamp, University Farm, St. Paul 8, Minn., secretary.

Rhode Island Veterinary Medical Association. Narragansett Hotel, Providence, R. I., Jan. 11, 1944. J. S. Barber, 560 Pleasant St., Pawtucket, R. I., secretary.

Indiana State Veterinary Medical Association. Severin Hotel, Indianapolis, Ind., Jan. 11-12-13, 1944. C. C. Dobson, New Augusta, Ind., secretary-treasurer.

Ontario Veterinary Medical Association. Annual meeting, Royal York Hotel, Toronto, Ontario, Jan. 27-28, 1944. F. H. S. Lowrey, 2555 Bloor St., W., Toronto, Ont., secretary.

Michigan State College. Post-Graduate Conference for veterinarians. East Lansing, Mich., Jan. 25-28, 1944. Ward Giltner, Division of Veterinary Science, East Lansing, Mich., dean.

Illinois State Veterinary Medical Association. Annual meeting, Leland Hotel, Springfield, Jan. 20-21, 1944. C. C. Hastings, secretary-treasurer.

Virginia State Veterinary Medical Association. John Marshall Hotel, Richmond, Va., Jan. 12-13, 1944. E. P. Johnson, Box 593, Blacksburg, Va., secretary.

Iowa Veterinary Medical Association. Jan. 25-27. 1944. C. C. Franks, 720 Grand Ave., Des Moines, Iowa, secretary.

New Jersey Veterinary Medical Association. Hotel Sheraton, Newark, N. J., Feb. 3-4, 1944. J. R. Porteus, Box 938, Trenton, N. J., secretary.

Alabama Polytechnic Institute. Annual short course for veterinarians. Auburn, Ala., Feb. 8-10, 1944. E. S. Winters, College of Veterinary Medicine, Auburn, Ala., administrative secretary.

BIRTHS

To Dr. (UP, '42) and Mrs. Max M. Bree, 2398 Canby St., Harrisburg, Pa., a son, Robert Leonard, Oct. 25, 1943.

To Dr. (Corn, '37) and Mrs. Carl Kellman, 1662 Hoe Ave., Bronx, N. Y., a daughter, Sarita Lila, Nov. 24, 1943.

To Dr. (Ont, '30) and Mrs. Lyle M. Dingman, Prophetstown, Ill., a son, David John, Nov. 27, 1943.

DEATHS

W. H. Austin, 76, (Ia.S. '91) Gilman, Iowa, died of "atypical pneumonia," at Community Hospital, Grinnell, Sept. 2, 1943. He had practiced in Jasper and Marshall counties for fifty-two years. He is survived by his widow, *née* Belva Bronson, three sisters, and a brother.

Charles A. Bradley, 72, (C.V.C. '97) one of Iowa's most prominent practitioners, died suddenly at his home in Marion, Oct. 31, 1943. He was a bachelor, a native Iowan, and prominent in local civic affairs as well as in the veterinary circle. His entire professional life was spent in Marion where his passing is mourned by a host of real friends.

Edward H. Lenheim, 53, (St. Jos. '16) Lyndon, Kans., World War I veterinary officer and later engaged in various military and civil pursuits, died June 7, 1943. He served as a major in the Kansas National Guard, BAI inspector in Wisconsin and Ohio, had held a high commission in the CCC of Ohio, and for two years was city veterinarian of Topeka, Kans. In 1939, he located for general practice at Lyndon, Kans., where he was overtaken by sudden death. He is survived by his widow *née* Chattice Treat.

Lt. Herman L. Moser, 32, (O.S.U. '36) former practitioner of Pontiac, Ill., was killed in the line of duty in an airplane crash in Texas, July 28, 1943. The Lieutenant was on duty at the Station Veterinary Hospital, Fort Sill, Okla. He was a native of Wayne County, Ohio, and before entering the Army enjoyed a large practice at Pontiac.

Herman Stark, 61, (N. Y. Am. '03) died Oct. 16, 1943, after a protracted illness. He was born in New York City, Sept. 7, 1882, and upon graduating was awarded the gold medal of the college faculty. Dr. Stark was professionally progressive and public spirited. He was the first veterinarian to introduce X-ray treatments for animals. Besides participating continuously in association work he donated recently five $100 War Bonds to be awarded annually for noteworthy clinical reports presented before the New York City Veterinary Medical Association. The donation was named the Stark Award. Dr. Stark contributed outstanding clinical articles to the JOURNAL. He joined the AVMA in 1919. His widow and three sons survive him.

R. W. Ritter, 58, (C.V.C. '11) Huntington Park, California, inspector of the California State Department of Agriculture, died Oct. 5, 1943. He was born in Indiana and went to California to engage in practice at Holtville in 1913.

THE VETERINARY PROFESSION AND THE WAR

Revised Procedure for Determining Availability of Veterinarians for Civil Service Positions in USDA

Under date of Nov. 22, 1943, the Directing Board of the Procurement and Assignment Service advised state veterinary chairmen that requests from the War Food Administration for availability clearances on veterinarians would no longer be handled according to the procedure given in memorandum (form 293) of Aug. 27, 1943. Effective immediately, the procedure outlined below will be followed for WFA:

1) The appointing official in the field office of the War Food Administration may request verbal clearance by telephone from the state chairman for veterinarians in which the individual being considered for appointment resides.

2) The appointing official of the WFA, on receipt of verbal clearance, will promptly forward to the state chairman for veterinarians copies in triplicate of form 4183 (Civil Service—Procurement and Assignment Service Clearance Form) for formal approval.

3) The state chairman for veterinarians will endorse and forward the original copy of civil service form 4183 to the appointing official of the War Food Administration, retaining one copy for his file and forwarding the third copy promptly to the central office, Procurement and Assignment Service in Washington.

In cases where clearance by telephone is not necessary, the appointing official of the WFA will request clearance in writing, submitting copies of form 4183 to the state chairman for veterinarians in triplicate. The state chairman will return the signed original to the appointing official, retaining one copy for his file and returning the third copy promptly to the central office. Procurement and Assignment Service in Washington.

The following is a list of the regional personnel chiefs of the Food Distribution Administration of the War Food Administration, together with the states under their jurisdiction:

SOUTHHERN REGION

John B. Garnett, Chief
Regional Personnel Division
Food Distribution Administration
Western Union Building
Atlanta, Georgia

Alabama
Florida
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee
Virginia

NORTHEAST REGION

Earl Hoyle, Chief
Regional Personnel Division
Food Distribution Administration
150 Broadway
New York, New York

Connecticut
Delaware
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
Pennsylvania
Vermont
West Virginia
Rhode Island

MIDWEST REGION

James H. Betcher, Jr., Chief
Regional Personnel Division
Food Distribution Administration
5 South Wabash Avenue
Chicago, Illinois

Indiana
Iowa
Michigan
Minnesota
Missouri
Nebraska
North Dakota
South Dakota
Ohio
Wisconsin

SOUTHWEST REGION

John W. Bolish, Chief
Regional Personnel Division
Food Distribution Administration
425 Wilson Building
Dallas, Texas

Arkansas
Colorado
Kansas
Louisiana
New Mexico
Oklahoma

WESTERN REGION
James T. Forster, Chief
Regional Personnel Division
Food Distribution Administration
821 Market Street
San Francisco, California

Arizona	Oregon
Idaho	Utah
Montana	Washington
Nevada	Wyoming

The procedure for clearing veterinarians for employment by the Bureau of Animal Industry, U. S. Department of Agriculture, will not be changed.

Veterinarians Wanted for Relocation to Government Nonmilitary Positions

The Directing Board, Procurement and Assignment Service, recently requested state veterinary chairmen to submit lists of veterinarians not now in essential positions and who are eligible for relocation, also lists of recent graduates from veterinary schools, who may be available for government positions. This information is desired in order to expedite the placement of veterinarians in nonmilitary U. S. civil service positions, particularly with the Bureau of Animal Industry, USDA, and the War Food Administration.

Tactical Use of War Dogs

Up to the present time, only vague facts have been announced about the thousands of dogs procured by the Remount Division of the Quartermaster Corps for the armed forces operating in the field and military installations at home and in far-flung places abroad. From coast to coast, war dogs are aiding soldiers to guard public property and personnel: factories, machinery, training posts, stored food, gun emplacements, motor parks, ammunition dumps, trainees, and workmen.

The armed forces now have trained sentry dogs, attack dogs, and messenger dogs working with troops in the jungles, and also transport dogs to carry light loads among which are cages of carrier pigeons and small arms ammunition. Dogs are also being trained to aid medical corps units to locate wounded soldiers hiding in unseen places or buried in débris thrown up by bombs. At northern posts sledge dogs, natural, peacetime transport animals, are rendering yeoman service for American soldiers.



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—Wing Tips, U. S. Army Air Corps Publication



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The various aluminum salts (known as "alum"), on the other hand, have an inadequate adsorptive effect except in the presence of aluminum hydroxide, and even then such adsorption is nonselective and reversible. As a result, not all of the antigens are adsorbed and those that are may go back into solution.

Remember, aluminum hydroxide adsorption distinguishes

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a mixed bacterin, containing in addition to Pasteurella boviseptica, a group of other organisms often associated in the pulmonary type of the infection and considered by many field workers as largely responsible for this type of infection.

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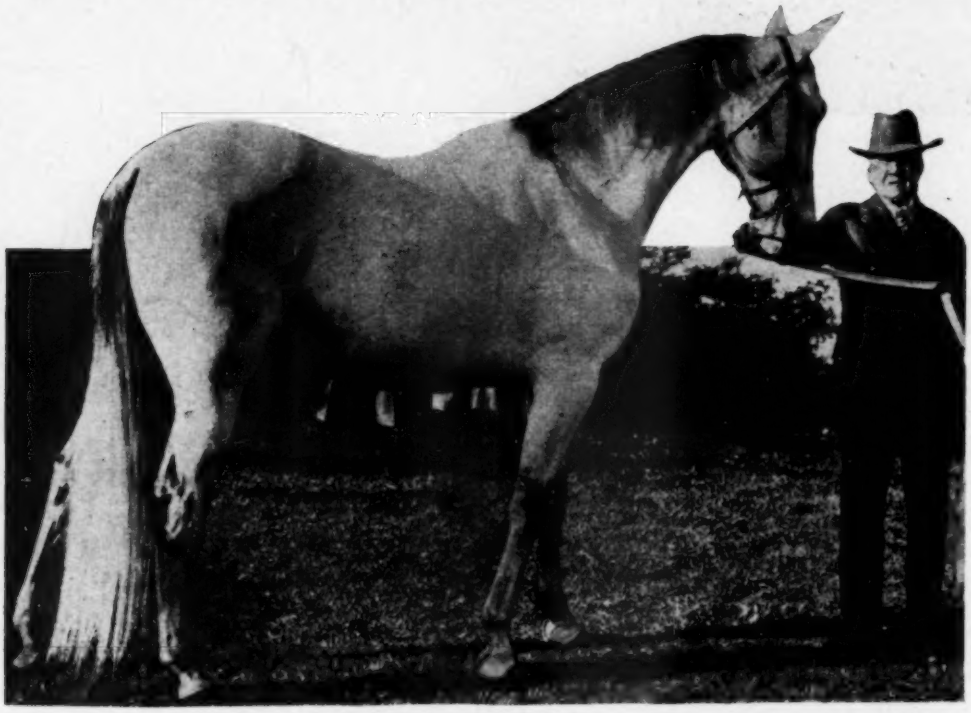
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An' Related Topics

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It's tough sleddin' to get over the idea that diseases of farm animals are a factor in food production and here is the reason:—A milk marketing agency asked Washington for more trucks to move milk. Six weeks later they got a reply telling them to hold their milk for the time being, whereupon the agency retorted "Cows do hold their milk, but they just can't hold it much longer."

As a drain on the farmer's pocketbook, the promiscuous use of strain 19 is second only to the farm bureau plan of seeding down the Middlewest to hog cholera.

Trying to put farming on a parity with so-called business is a socio-political fault. Farming is not as much a business as a way of life, a way of life enjoyed on man's only source of existence—land.

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Identification: Antiseptigen.

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Organic Matter: None.

Temperature of Medication: 37° C.

Dose: 0.5 c.c. of culture to 5 c.c. dilute disinfectant.

Subcultures: One 4 m.m. loopful to 10 c.c. broth.

The subcultures were incubated at 37° C. for 48 hours with the following results:

Sample	Dilution	Minutes Exposed to Disinfectant			Phenol Coefficient
		5	10	15	
No. 7258	1- 50	—	—	—	
	- 60	+	—	—	
	70	+	—	—	
	- 80	+	—	—	
	90	+	+	—	
	-100	+	+	—	
	-110	+	+	—	
	-120	+	+	+	80/1.00 P. C.
Phenol	1- 80	+	—	—	
	- 90	+	+	+	

The above test indicates that this product has a staphylococcus aureus Phenol Coefficient of 1.00 as determined by the Food and Drug Administration Method at 37° C., or has a germicidal power toward staphylococcus aureus 1.00 times that of pure phenol

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All this is offered to the AVMA for $10 per member, "cash outright, after officials of your association are convinced." It comes in the form of a booklet containing also "five dog stories with a million laughs." Name and address of writer on application.

Bottom of the Barrel

Unbelievable as it may seem, never since the amphibious landings in Virginia and Massachusetts, back in the early part of the seventeenth century, have the American people had to scrape the bottom of the food barrel, until Hitler and cohorts took on the behavior of famished monsters. And, generally unknown as it is, none has ever gauged the food barrel as accurately as the veterinary profession. As soon as pigs and cows and sheep of the barnyard took the place of the turkeys and deer of the clearing, the American people were always closer to the bottom of the barrel than they knew. The shortage of the Civil War and the postwar decade, which led to the founding of a veterinary service, was but a transient shock. The expansion of farming through immigration kept the barrel full; often too full to prevent surpluses and farm mortgages. We've brought corn from the crib to the stovewood box many a time, tried to figure how to carry on with 2-cent hogs, and we sought foreign markets in vain for the surplus stocks, only to find these markets closed because of the failure to look into the little matter of disease.

Defense AGAINST DISTEMPER



The one-injection method of immunizing dogs against distemper.

Medical science has made notable strides during the past decade. In the field of veterinary medicine one of the most outstanding contributions has been the modification of distemper virus by numerous serial passages through ferrets resulting in

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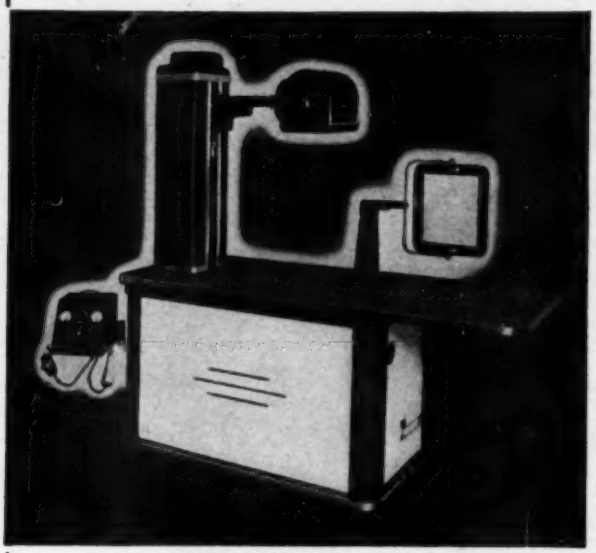
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(Continued from preceding page)

The situation always had everybody guessing except the veterinarians whose business it is to understand the relation of farm animals to human welfare. But the busy American population never knocked off long enough to get an inkling of their debt to farm animals, of the sober reality that all life is of the soil, and that man can't eat hay and corn fodder. Whole populations have been just that dumb, and that's admitted to be impolite. Politeness never soaked in, so, there is purpose in telling it the wrong way. They've waited for the coming of Hitler, Hirohito, hungry millions, and rationing, before stopping to study the sôle source of human existence and to inaugurate practical means of preserving it. If that isn't dumb, what's the word? The phrase, "our alleged civilization," has come into common use, and why not? Nothing could be more "alleged," as we watch our good folks scraping the bottom of the barrel. Gosh, do we have to tell them again about the incalculable poundage they could have had by merely backing the scientific management of farm-animal diseases?

Cereals and Meat

Well I reckon cutting out meat might save after all. We wouldn't need dishes nor table tools. But, I'd have to build a feed trough in the kitchen and haul in hulls and hay, then drive my wife in. The children could follow just like calves do. But it's going to be powerful troublesome to stake her out between times, so she can keep the lawn grazed down.—*E. N. Wentworth, before the Feed Institute, Des Moines.*

World history is full of proof that the surest way for nations to pass out is to become vegetarian and *per contra*, the best way to get strong is to eat meat.

Wadia (*Science*, Oct. 22, 1943) misses the mark a mile when he writes that "Man's advancement from the hunter to the peasant stage is due to his mastery of metals." It was animals, domestication of animals, Doctor, that gave man his first boost. The toughest job we've got, Doctor, is to get folks to understand what animals did since man took over.




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